

A COMPARISON OF ACCESS TO MEDICAL CARE FOR INSURED AND UNINSURED EXPATRIATES IN SAUDI ARABIA

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for the degree of Doctor in Philosophy, Liverpool School of Tropical Medicine**

By:

ABDULWAHAB ABDULLAH ALKHAMIS

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DEDICATION

This research is dedicated to the spirit of my late father, Al Shaikh Abdullah Al Khamis, God rest his soul. In life as in death, he was and shall remain my role model, and I will follow in his footsteps.

ABSTRACT

Background: Saudi Arabia is one of the Gulf Cooperative Council (GCC) countries which have common characteristics such as high-income governments, dominant expatriate populations, and under-developed healthcare systems, including healthcare financing. The dominance of the expatriate working population raises the question of how to find a mechanism that ensures expatriates have appropriate access to medical care whilst the employers bear the responsibility of healthcare expenses. Saudi Arabia is one of the few GCC countries to have reformed its private healthcare system through a Compulsory Employment-Based Health Insurance (CEBHI). The CEBHI was designed to mitigate some of the disadvantages of the Employment Sponsored Insurance scheme previously implemented in the United States; and this is the first study to investigate the impact of this form of private health insurance on access to medical care, in a country such as Saudi Arabia.

The main aim of the study was to explore the influence of health insurance on access to medical care, in order to assist the Saudi Government in their deliberations about making CEBHI compulsory for all people (citizens and expatriates) within Saudi Arabia. This aim was investigated through the following objectives: 1) to review health financing in Saudi Arabia and compare it with other GCC countries and elsewhere in the world; 2) to compare the access to medical care of insured and uninsured expatriates in Saudi Arabia; 3) to develop a framework for understanding the complex relationship of health insurance and access to healthcare, 4) to make policy-relevant recommendations regarding the key question as to whether compulsory health insurance in Saudi Arabia should be expanded.

Methods: Two methods were used to tackle the study objectives. Firstly, a framework for country-level analysis of healthcare financing arrangements was used to compare and analyse the national expenditure on healthcare within the GCC and other developing/developed countries.

Secondly, a logistic regression analysis of data from a cross-sectional survey was undertaken to investigate the impact of health insurance on access to medical care, considering the main workplace and personal characteristics of the expatriates. Three access measures, access to usual medical care (Access 1), inability to access medical care (Access 2), and utilization of medical care (Access 3), were used to evaluate access to medical care for the expatriate population. Prior to the implementation of CEBHI the expatriate population accessed medical care through a variety of different avenues. These modes of access were used as classification of the expatriate population into four groups.

Two of these groups were insured but had a different Previous Method of Paying for Healthcare (PMPHC) (Group B=insured, not paid, and Group D=insured and paid) and two groups were not insured but also had different PMPHC (Group A=not insured, not paid and Group C=not insured, but paid). A multistage stratified cluster sampling was used, and a sample selected from each sector and company size proportionately. The total sample size was 3,278. A simple conceptual framework for studying access to medical care was developed to guide the multi-variate regression techniques, and greatly assisted interpretation of the results.

Results: The GCC characteristics impact on the healthcare financing strategies of GCC countries in three ways. First, GCC governments provide the majority share of the health budget, similar to high-income countries. Second, GCC countries use different strategies to control expatriates costs, but some of these strategies lead to increased out-of-pocket expenses, which is a characteristic of low-income countries. Third, health care financing systems in GCC countries are still being developed as they finance most of their public services, including health care services, with revenue from natural resources (i.e. oil or gas). Additionally, some of their health care indicators are identifiable with those from below upper-middle income countries. In addition, after CEBHI, private expenditure did not change but remained around 22.4%, which does not reflect the huge number of people having access to medical care through private sector only. However, there was a shift in the means of private sector expenditure from Out Of Pocket payments to private insurance expenditure. OOP expenditure decreased from 32.3% in 2006 to 28.4% in 2008, and private insurance expenditure increased as a percentage of private sector expenditure from 26.2% in 2006 to 36.7% in 2008.

Analysis of the data from the survey demonstrates that health insurance is strongly associated with access to medical care, as measured by the three different access measures). Compared to uninsured workers, being enrolled in CEBHI increased the possibility of an expatriate's access to usual medical care and utilisation of medical care by more than 10 (8.709-12.299, 95%), and 2.3 (1.946-2.750, 95%) respectively. However, the influence of PMPHC is greater than the influence of insurance alone on reducing the inability to access medical care (health insurance reduced the inability to access medical services by 42% (0.515-0.995, 95%), whereas PMPHC reduced the inability to access medical services by more than 65.% (0.273-0.436, 95%)). Therefore, the impact of health insurance on access to medical care is much greater for those expatriates previously having had healthcare costs met by their employer, than for those who had not. These impacts remained, when the odds ratios were adjusted for both workplace and personal characteristics.

Conclusion: CEBHI has a clear positive impact on reducing out of pocket payments and increasing private insurance expenditure. However, overall, private healthcare expenditure has increased insignificantly. This indicates that the main impact of CEBHI on private expenditure, is the change in the mode of payment from out of pocket payments to private insurance expenditure. However, the actual impact on private sector expenditure is still minor.

Access to medical care is influenced by health insurance. In addition, it is also influenced by PMPHC as a contributory role to play in the influence of health insurance on access to medical care. Workplace and personal characteristics play a small part in mediating the influence of health insurance on access to medical care.

A framework was developed for understanding the complex relationship of health insurance and access to healthcare, which will be useful for further investigations regarding the influence of health insurance on access to medical care. Both long and short-term recommendations are proposed for increasing the expatriate population's access to medical care, whilst reducing the burden on healthcare financing.

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Abbreviations

AHRQ	: The Agency for Healthcare Research and Quality
CCHI	: The Council of Cooperative Health Insurance
CDC	: Centre for Disease Control and Prevention
CEBHI	: Compulsory Employment-Based Health Insurance
CI	: Confidence Interval
EBHI	: Employment-Based Health Insurance
ESI	: Employment Sponsored Insurance
FSA	: Flexible Spending Account
GCC	: Gulf Cooperation Council
GP	: A General Practitioner
HRA	: Health Reimbursement Account
ISCO	: International Standard Classification of Occupations
MOH	: Ministry of Health
NCHS	: National Centre for Health Statistics
OECD	: Organisation for Economic Cooperation and Development.
OOP	: Out-of-Pocket
OR	: Odds Ratio
PHI	: Private Health Insurance
PMPHC	: Previous Method of Paying for Health Care
SAMA	: Saudi Arabian Monetary Agency
SHI	: Social Health Insurance
SR	: Saudi Riyal. SR 3.75=\$1
UAE	: United Arab Emirates
VHI	: Voluntary Health Insurance
WHO	: World Health Organisation

Glossary

Access to Medical Care Services: “is a complex concept but in this thesis has been defined by three dimensions or measures”. These measures are access to regular provider (called usual medical care), perceive medical needs (inability of access to medical care), and actual use of medical care (utilization of medical care).

Benefits Package: “is not simply a list of services to which the population (or beneficiaries of an insurance scheme) are entitled, but as those services and as a means of accessing services, for which the purchaser will pay from pooled funds” (Kutzin, 2001).

Co-payment: “an out-of pocket payment charge paid by an insured individual at the point of services (in addition to the pre-paid premium)” (Bethesda, 2000).

Health Services Coverage: “is a concept expressing the extent of interaction between the services and the people for whom it is intended” (Tanahashi, 1978).

Expatriate Worker: In this study, the term ‘expatriate’ refers to migrant workers in the private sector. This definition includes temporary labour migrants (also known as guest workers or overseas contract workers) and highly skilled and business migrants that fall under the category of international migrants (UNESCO, 2010).

Flexible Spending Arrangement (FSA): “is a tax shelter for out-of-pocket spending on medical care. FSAs allow employees to select a specific amount of money that is deducted in equal instalments from their pay before taxes are withheld. As employees incur out-of-pocket medical and dental expenses that are not covered by insurance, they submit claims to their Benefits Department for payment from the FSA. By the year’s end, they must either spend all the money in their account or lose it” (Pilzer, 2005).

Health Insurance: “a system of funding set up in advance to pool resources of many individuals as a means to pay for unexpected and usual large healthcare expenditures required by some individuals in the contractual arrangement” (Bethesda, 2000).

Health Reimbursement Arrangement (HRA): “is a tax-advantaged arrangement (not an account) that employees can use to receive reimbursement for qualified medical expenses,

including health insurance premium. HRAs must be 100% funded by employers” (Pilzer, 2005).

Iqama: Refers to the Saudi Arabian residence permit.

Job Skills Required: Refers to skills & education required in a certain Job.

Pooling of Healthcare Revenue: “is the accumulation of prepaid healthcare revenues on behalf of a population” (Kutzin, 2001).

Premium: “amount of money paid to insurers on a regular basis in return for coverage (membership in an insurance plan). Premium rate for health insurance may be based on the average costs of a claim of the covered populations or vary by socio-demographic characteristics such as age, sex, and occupational activities” (Bethesda, 2000).

Provision of Services: Provision refers to the “market structure of service” (Kutzin, 2001).

Purchasing: “is the transfer of pooled resources to service providers on behalf of the population for which the funds were pooled” (Kutzin, 2001).

Resource Allocation Mechanism: “sources of pooled funds and contribution methods” (Kutzin, 2001).

The Council of Cooperative Health Insurance (CCHI) is the governmental body that is responsible for regulating and monitoring the universality of health insurance coverage (CCHI, 2009c).

Utilisation of Medical Care: utilisation of medical care sometimes denotes access to medical care, but is defined in this study as the actual use of medical care.

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1 Chapter 1: Introduction, Aims, Objectives and Background

1.1 Introduction

The role of private health insurance is unlikely to be the same in high as in low-income countries. The role in many lower and middle-income countries is to provide primary coverage and the only form of risk pooling is for those who are employed (Sekhri and Savedoff, 2005). Lately, the role of private health insurance has expanded in many developing countries with the support of the World Bank (Sekhri and Savedoff, 2005, Berkhout and Oostingh, 2008, Dorherty, 2011). One of the reasons for this expansion is the growth and competition of the private sector. Subsequently, employers are looking at different avenues for providing health insurance to their employees (Drechsler and Jütting, 2007, Islam, 2007, Smith, 2007).

Globally, the role of private health insurance in achieving universal access to healthcare is limited. As some authors report, private health insurance exceeds 20% of total health expenditure in six countries worldwide and is higher than 10% in four countries (Drechsler and Jutting, 2007, Colombo, 2007). However, there is disparity regarding the role that private health insurance could play. On the one hand, some experts claim it leads to over use of care, increasing costs, inequitable access to care, cream-skimming, adverse selection, acts as a moral hazard, diverts a limited budget away from the people most in need, and leads to a poor healthcare system, similar to that implemented in the United States (Relman, 2007, Blumenthal and Hsiao, 2005, Hsiao, 2007). A further group of experts believe that private health insurance reaches formal employees only, whilst the low-income and the informal sector cannot benefit from the system (Islam, 2007). Other experts claim that private health insurance allows people to gain better access to care whenever they need it, without long waiting periods, poor quality, or the use of stagnant public services (Preker et al., 2007). Additionally, private health insurance protects people financially and prevents them from poverty (Bassett and Kane, 2007). Zweifel (2005) reported that private health insurance helps to avoid 'under the table' payments that have been noted when people use government care centres under mandatory Social Health Insurance (SHI)(Zweifel, 2005). Furthermore, they claim that it increases satisfaction and helps people gain comprehensive coverage, primarily those with middle incomes (Colombo, 2007). It has also been noted that most of the disadvantages relating to private health insurance systems, exist in SHI and government subsidised health services also (Preker et al., 2007).

Little is known about the possibility of expanding the role of private health insurance to achieve universal access to medical services in developing countries, whilst mitigating some

of the disadvantages of its traditional form. There is little proof that imposing on employers to provide health insurance actually helps employees gain better access to healthcare. In addition, there is little evidence regarding the performance of different forms of private health insurance in developing countries compared to numerous studies on developed countries (Bassett and Kane, 2007); nor is there literature that evaluates the role of private employment based health insurance in developing countries (Bassett and Kane, 2007).

This is the first study that investigates the influence of private health insurance on access to medical care for expatriate workers in the Kingdom of Saudi Arabia. Health insurance in the form of Compulsory Employment-Based Health Insurance (CEBHI) was introduced in Saudi Arabia in 1999 but the actual implementation began in 2006. The introduction was carried out gradually according to the size of the firm, similar to the Korean social health insurance stage of implementation (Jeong and Niki, 2012). As Table 1.1 indicates, the CEBHI's full implementation finished on 9th November 2008, CEBHI was implemented to all companies regardless of the number of employees.

There was a large group of expatriates who were covered by CEBHI but a substantial group remained uninsured. There is still considerable discussion within the government as to whether CEBHI should become compulsory for everyone including citizens in public sectors. As of 2009 when this study was embarked upon, no decision had been made. Since one of the goals of health insurance is to increase access to medical care for those insured, it seemed appropriate to investigate the influence of enforcement of CEBHI on access to medical care. The phased introduction of CEBHI provided a natural 'quasi-experiment' situation within which this investigation could take place, since there are ready-made cohorts of expatriates both insured and uninsured by CEBHI. This situation provided the opportunity to investigate the hypothesis that enforcement of health insurance, in the form of CEBHI, increases access to medical care for those insured. This study was also undertaken to establish the evidence for or against this hypothesis, at least as far the experience in Saudi Arabia will allow.

Table 1.1: Implementation Stages of CEBHI

Stage	Number of employees in the company	Date / Year of Implementation	Coverage
1	More than 500	15 July 2006 September 2006	<ul style="list-style-type: none"> • Expatriates in companies larger than 6,000 employees • Expatriates in companies larger than 500 employees
2	200 – 499	6 April 2007 29 July 2007	<ul style="list-style-type: none"> • Expatriates in companies with 459-499 employees • Expatriates in companies with more than 200 employees
3	99-199	12 September 2007 10 November 2007	<ul style="list-style-type: none"> • Expatriates in companies with 189-199 employees • Expatriates in companies with more than 98 employees
4	50-98	7 April 2008 17 August 2008	<ul style="list-style-type: none"> • Expatriates in companies with 95-99 employees • Expatriates in companies with more than 49 employees
5	1,400-6,000	July 2008 6 August 2008	<ul style="list-style-type: none"> • Dependents of expatriates in companies with more than 6,000 employees • Dependents of expatriates in companies with more than 1,400 employees
6	<u>All companies</u>	Mid-September 2008 9 November 2008	<ul style="list-style-type: none"> • Expatriates in companies with 45-49 employees • All expatriate employees
7	Second stage including coverage for expatriate families	12 March 2009	<ul style="list-style-type: none"> • Dependents of expatriates in companies with more than 900 employees

Source: (CCHI, 2009a)

1.2 Aim and Objectives

The aim of this study was to investigate in a natural ‘quasi experimental’ setting, whether or not enforcement of health insurance increase access to medical care. Furthermore, this study will assist the Saudi Government in their deliberations about making CEBHI compulsory for all people (citizens and expatriates) in Saudi Arabia.

Within this overall aim the study addresses the following objectives:

- Objective 1: To review health financing in Saudi Arabia including CEBHI, and compare with other GCC countries and elsewhere in the world.
- Objective 2: To compare access to medical care for insured and uninsured expatriates in Saudi Arabia.
- Objective 3: To provide a framework/model for understanding the complex relationship of health insurance to access to medical care.
- Objective 4: To make policy-relevant recommendations regarding the key question of whether to expand compulsory health insurance in Saudi Arabia.

1.3 Background

CEBHI means that the employer shoulders the cost of medical care in the private sector. 2002 witnessed declaration of the rules for implementation of CEBHI on employers of expatriate workers in the private sector in Saudi Arabia, where the cooperative health insurance coverage included all individual employees and their families to which this Law applies. However, not all expatriate dependents were covered during the period of this study as implementation has occurred gradually, similar to that of South Korea (Jeong and Niki, 2012), according to the size of the firm (see Table 1.1).

The CEBHI scheme was implemented in Saudi Arabia to benefit all expatriate workers in the private sector, with the multiple aims of regulating the provision of healthcare for expatriates whilst providing financial protection against their healthcare expenses, improving utilisation of the government healthcare budget, reducing the load on the government's healthcare providers, and increasing the participation of private healthcare sector expenditure. Subsequently, this new health insurance policy was expected to increase expatriate access to private healthcare services and reduce the demand on governmental healthcare services, thereby allowing better government spending on healthcare services (further details regarding the reason for CEBHI introduction, are provided in Chapter 2, Section 2.11).

The decision to implement compulsory health insurance cannot be isolated from the political, social, economic and the cultural context of the country, which also influences the acceptance of the new system by society. Understanding the political system is very important, since it provides a background for how the health insurance policy is approved, regulated, modified and studied. Additionally, the political system enhances the understanding of the constitution of a country, which in this case, may not accept 'for-profit insurance'. Understanding the historical background also helps to provide clarity regarding the main influential factors on access to medical services and healthcare utilisation.

Specifically, history describes the development of healthcare services, development of private healthcare services in relation to the government's development plans and the development of health insurance sector. These developments will be explored in the Saudi Arabian context and will be connected to the justification for the CEBHI system in Saudi Arabia.

CEBHI requires that the employer carries the cost of medical care in the private sector. Health financing is vital for achieving a health system's basic goal of improving health status, providing financial protection against the cost of catastrophic illness, and assuring customer satisfaction (Schieber, 2005). International experience demonstrates that there is no single correct approach that a health financing reform effort must go through, but any approach to healthcare reform should judiciously consider the country's political, demographic, economic, cultural, and institutional circumstances (Schieber, 2005).

Below is a brief discussion regarding the political and demographic backgrounds (population, city, & workforce), government attitude toward the increase in expatriate workers and their main characteristics, and Saudi Arabia's health status. At the end of this chapter, some definitions for expatriate workers and health insurance, will be provided in the context of CEBHI.

1.3.1 Political System in Saudi Arabia

The political system is one of the factors that ought to contribute to the choice of health financing systems (Jia et al., 2009). Saudi Arabia's constitution is the Holy Quran and Shariah law. All laws and regulations are drafted then submitted to religious scholars for review and approval (Council of Senior Scholars). The role of this Council is to ensure that the regulations and laws comply with Islamic law. Insurance in general, including health insurance, is a controversial issue for Islamic scholars and the reasons will be discussed in Chapter 3 (section 3.7). In short, some religious scholars believe that insurance in general, is not permissible, but an exception is made for cooperative insurance. Although the Saudi health insurance system is called cooperative health insurance, it is not cooperative by practice (Al-Ashak, 2009) as will be illustrated later. Therefore, the Grand Mufti beliefs that Saudi health insurance is not permissible (Al-Ashak, 2009) and this Islamic point of view has hampered the development of the Saudi Arabian health insurance market.

As a monarchy, the King of Saudi Arabia has three key responsibilities: he is the Head of State, the Prime Minister and the Commander in Chief of the Armed Forces. Any decision or

policy must be reviewed and approved by the King, the Council of Ministers, and the Consultative Council (Majilis Al Shoura) (Mufti, 2000). The King appoints both the Council of Ministers and the Consultative Council. The Council of Ministers assists the King in formulating and executing his policies. There are no lobbies that influence the political system in Saudi Arabia. Therefore, a new policy, such as the one governing health insurance, is reviewed by various committees and is studied by both the Bureau of Experts and the Consultative Assembly Council before a decision is reached.

1.3.2 Saudi Arabian Population Demographics

Saudi Arabia's native population is relatively small, homogenous and shares the same culture, religion, language, and social values (MOH, 2007). The total population is 27,136,977, and of the total population, 31% are non-Saudi residents (Central Department of Statistics & Information, 2010). The average Saudi family has 6 people per family, and of the total population, 32.6% are estimated to be under the age of 15 years (Central Department of Statistics & Information, 2007a).

The influx of expatriate workers into the Kingdom of Saudi Arabia began during the oil price boom (1973-1979). Together with the Kingdom's economic expansion, the growth of expatriate workers was 4.2%, whereas the growth of citizen workers was only 3.7% after the 1970s (Kasnawi 2008). The growth rate between 1992 and 2004 was estimated at 2.5% for Saudis and 2.4% for non-Saudis (Central Department of Statistics & Information, 2007a). During the first development plan (1970-1975), expatriate growth was higher than for Saudi workers (4.2% versus 3.7%), but Saudi workers dominated 80% of the total manpower (Ministry of Planning, 1975). Population growth increases the demand on medical services and therefore it is important to the decision makers that the increase in demand for public hospitals or healthcare centres does not limit access to medical services. The population of Saudi Arabia increased from 7.32 million in 1975 to more than 24 million in 2007 (Ministry of Economy and Planning, 2003, The World Bank, 2008). In 2007, non-Saudi residents were 27.1% of the total population (Central Department of Statistics & Information, 2007a). In three years the non-Saudi resident population has increased to more than 31% in 2010 (Central Department of Statistics & Information, 2010).

The life expectancy at birth was less than 50 years in 1974 but increased to 73.1 years by 2006 (Central Department of Statistics & Information, 1974, MOH, 2007). It is expected that life expectancy will reach 77 years by 2020 (Schieber, 2002). The demands on healthcare in the future will be shifted from population growth to population ageing. In 2004, the proportion

of younger age groups (below 15 years) decreased from 49.23% in 1992 to 39.92%, whereas the elderly population (those above 65 years), rose for the same period from 3.26% to 3.5% (Central Department of Statistics & Information, 1992, Central Department of Statistics & Information, 2004). The figures for Saudi have been predicted to increase to 4.1% and 28% respectively by 2020 (United Nations, 2008b). Furthermore, the World Bank expects that the population for those over 60 years to reach 7% of the total population by 2020 (Schieber, 2002). More specifically, the World Bank anticipates that there will be 2.5 million people over 60 years of age by 2020, whereas the United Nations predicted this number to be 2.1 million (United Nations, 2008b, Schieber, 2002).

1.3.3 City Demographics

Saudi Arabia is the 12th largest country in the world with an area of approximately 864,900 sq. miles (2,240,000 sq. km) (MOH, 2010c) (see Figure 1.1) . Non-transient Bedouins made up 86% of the population in 2002 (Schieber, 2002). Two cities, Riyadh and Jeddah, have 48% of Saudi Arabia's private hospitals and 55.5% of the total number of beds (MOH 2006). This distribution concurs with the population distribution, since the Riyadh and Makah regions (including Jeddah city) represented 49% of the population in 2004. Additionally, approximately 53% of the country's dispensaries and 74% of the private clinics are present in these two regions (MOH, 2007).

However, there are more than 2,000 villages with a limited number of people and a subsequently limited number of medical services; they are located in long scatter areas with diversity in their demographic characteristics (MOH, 2010c). Until the 1960s, the majority of the population was nomadic, but presently, the majority of the population is settled. This is attributed to rapid economic and urban growth, which is demonstrated by approximately 73% of the population living in urban and semi-urban regions (in small towns) (The World Bank, 2008).

The Riyadh region has the highest percentage of expatriate population at 32.08% (the second and the third regions are Makah and Eastern Regions with 22.72% and 21.98% respectively) (Central Department of Statistics & Information, 2008).

Figure 1.1: Saudi Arabia Map and Location



Source: (LTD, 2012)

1.3.4 Saudi Arabian Workforce Demographics

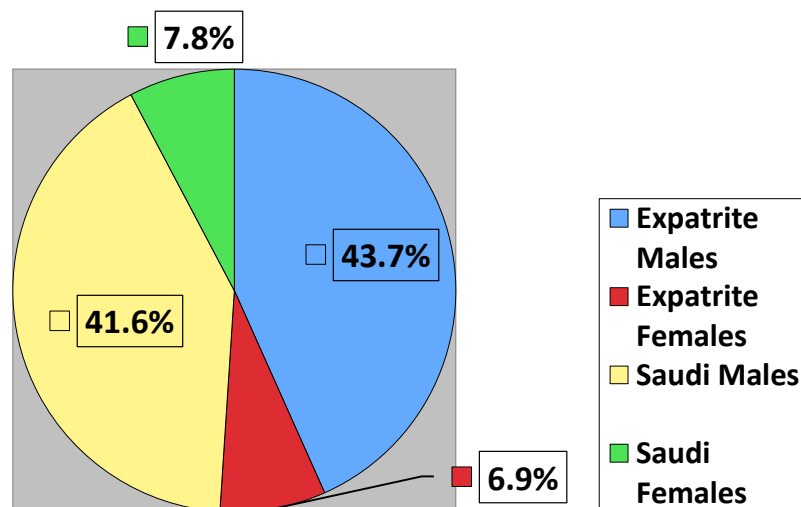
In 2008, the labour force was estimated to be more than 8.4 million (Central Department of Statistics & Information, 2008). This represented 50.2% of the total population over 15 years of age (Central Department of Statistics & Information, 2008). The number of working people was more than 8 million, which represented 94.8% of the total labour force (Central Department of Statistics & Information, 2008). Table 1.2 indicates that the expatriate labour force represented 79.9% of the total expatriate population over 15 years of age (Central Department of Statistics & Information, 2008). Figure 1.2 indicates that the expatriate population represented 51% of the total manpower in 2008 (male and female). The gross manpower in the private sector was more than 6.2 million in 2008, of which 86.67% were expatriates (Central Department of Statistics & Information, 2008). Men dominate the expatriate workforce in the private sector (98.30%). However, 8% of the expatriate workforce are female (includes government sector).

Table 1.2: The Gross non-Saudi Residents and Workers 2001-2003

Year	Non-Saudi Residents	Expatriate Workers	Percentage of Expatriate Workers
2001	7,248,986	4,988,684	69%
2002	7,718,855	5,437,109	70%
2003	8,253,950	5,987,678	73%
2007	8,267,978	5,922,819	72%
2008		5,392,890	79.9%*
2009	—	6,214,067	—

Source: (Ministry of Labour 2009, Ministry of Labour, 2006b)*(Central Department of Statistics & Information, 2008)

Figure 1.2: Distribution of Saudi and Non-Saudi Populations in the Labour Force (15 years and above) by Gender



Source: (Central Department of Statistics & Information, 2008)

1.3.5 Increase in the Expatriate Population

The increase of expatriate workers into the Kingdom of Saudi Arabia and other Gulf Cooperation Council (GCC) countries started during the oil price boom in the 1970s. Saudi Arabia and other GCC countries were found to be attractive, not only to foreign workers, but citizens were also travelling around the country seeking work (Kapiszewski, 2006, Kasnawi, 2008). Therefore, the population of GCC countries has expanded more than 8 times to reflect one of the highest rates of the population growth in the world (Kapiszewski, 2006).

Expressed as a percentage of the population, the Kingdom of Bahrain has 40.7%, Kuwait 68.8%, Oman 24.4%, Qatar 78.3%, Saudi Arabia 25.9% and United Arab Emirates 71.4% (Shah, 2009).

One of the main reasons for the substantial increase in the expatriate population is that the national manpower resources failed to cope with the rapid development of country's infrastructure. Therefore, many expatriates were brought into the GCC countries to utilize their skills and experience. For example, together with the Kingdom of Saudi Arabia's economic expansion, the growth of expatriate workers was 4.2%, whereas the growth of citizen workers was only 3.7% after 1970 (Kasnawi 2008). Between 1974 and 1988, the number of expatriate workers increased more than 500% (from 780,000 to 4.04 million). The first statistics for the number of non-Saudi citizens including expatriates were collected in 1974; the population increased more than 200% from 6 million to 14.55 million (Ministry of Economy and Planning, 2008). It is expected that the total Saudi Arabian population will increase by 56.6% between 2000 and 2020 (Ministry of Planning, 2000).

1.3.6 Government Attitude toward the Increase in Expatriates

The expatriate's role in GCC countries, including Saudi Arabia, was not only to fill low-status jobs and complement the national workers, as per their role in most of Western Europe, but also to become the primary labour force in most economic sectors (Kapiszewski, 2006). A growing number of nationals in GCC countries have faced difficulty in finding employment in the public sector since it became saturated by expatriates, and the unemployment rate of nationals has increased. The unemployment rate for Saudi nationals was 10.5% in 2009 (Central Department of Statistics & Information, 2010).

Many strategies have been implemented by GCC countries to reduce the unemployment rate, but it seems they have not reduced the unemployment rates for nationals nor reduced the number of expatriates. For example, some jobs are dedicated for nationals; there is a minimum number or percentage of nationals in some companies, and private companies must meet a quota of Saudis before being rewarded public tenders (Ministry of Labour, 2007a). On the other hand, many GCC countries have established training programs to ensure that the nationals have the required skills to meet private sector skill requirements (Ministry of Labour, 2007a).

Pressure on the Saudi government has increased due to the limited effect of these measures on reducing unemployment rates. Therefore, the government has established a

system to provide the unemployed nationals with compensation of SR2,000 (USD 533.33) per month (Decree, 2011). The Ministry of Labour has been assigned to develop the requirements for this program (Hafiz program); specifically, to determine what beneficiaries must comply with in order to be eligible for Hafiz compensation. The Hafiz program began paying stipends to unemployed Saudis on a monthly basis in 2011. Notably, the Hafiz compensation is higher than the average expatriate's salary in the private sector, as discussed in the following section.

1.3.7 The Main Characteristics of Expatriate Workers in Saudi Arabia

The expatriate population dominates the workforce in the private sector in Saudi Arabia, comprising 90% of the total workforce (Ministry of Labour, 2009a). Expatriates have different income and educational levels (from those who cannot read through to PhD holders), who originate from different places (approximately 200 countries) and speak many different languages. The average monthly salary for expatriate workers is SR1,098.77 (USD293.1) (Central Department of Statistics & Information, 2008), which is considered low-income and the majority of expatriates work in jobs that require low-skills. In addition, the average age of an expatriate is 36 years old, which considers a young population, and is discussed in further detail in Chapter 5. In this multicultural environment, socio-economic factors are also significant in that those with lower incomes struggle to afford care. The dominant nationalities that work in the private sector include those from Bangladesh, India and Pakistan. These three nationalities represent more than 50% of the total expatriate population within the private sector in the Riyadh region, as discussed in Chapter 5.

1.4 Expatriates' Health Status

Health problems in Saudi Arabia vary from communicable diseases, such as malaria and tuberculosis, to those of modern society including stress-related chronic diseases. Modern society diseases are rising as a result of lifestyle changes (WHO, 2006a).

The health status of an expatriate is expected to be good for two reasons. One, their average age is 36 years old and two, they are required to undergo two rounds of medical examination as part of the requirements for securing a work visa (Ministry of Labour, 2006b). The first medical is conducted at the home country as part of the requirements for obtaining a work visa, and the second is conducted upon arrival into the Kingdom (Ministry of Labour, 2006b). The purpose of the second medical examination is to confirm the first examination and ensure that the expatriate worker does not have any pre-existing ailments and communicable diseases such as HIV, hepatitis, tuberculosis and that he is physically

and mentally fit to work in Saudi Arabia (Ministry of Labour, 2006b). This fact might partially explain the other study findings that the percentage of disability (physical, mental disability and multiple disability) amongst expatriate workers under 60 is very rare (Al-Yaemni, 2010).

Health status and incidence of common diseases provide an indication of the demand on health services. Chronic and degenerative diseases, such as hypertension, obesity, diabetes and coronary heart disease, are becoming the major causes of morbidity and mortality within Saudi Arabia. Saudi Arabia ranks 3rd amongst countries in the world for obesity (35.6%) and diabetes (16.7%) (MOH, 2010c). It is well known that obesity and diabetes are major risk factors for many diseases and increase the consumption on medical care services. It is expected that by 2020, 55 people out of every 1,000 will be diagnosed with diabetes, whereas in 2000, only 46 cases in every 1,000 people were diagnosed with the disease. A study reported that male expatriates and poor were more at risk of suffering diabetic illness than female expatriates, and the more affluent female expatriates (were 23% at lower risk than the males, and the less affluent group were 1.45 times at risk than the affluent) (Al-Yaemni, 2010). The study also found a high prevalence of diabetes, hypertension, and asthma (3.4%, 2.2%, and 1.1% respectively) within the non-Saudi population, highlighting 17.% of the non-Saudi population's reported morbidity, with the largest morbidity prevalent in the over 50s.(Al-Yaemni, 2010).

Smoking remains another major health problem, with 38% of males over the age of 15 smoking, and 2% of females (WHO, 2006a), but within the expatriate population, the males were around 20 times more likely to smoke than the females (Al-Yaemni, 2010). Coupled with spiraling health costs, the above-mentioned concerns have an estimated economic impact of nearly USD65 billion, or 1-2% of the Gross National Product (GNP) (WHO, 2006a). These indicators influence the utilisation of healthcare services because the increase in demand on medical services influences access to those services. However, Saudi Arabia is considered as being average amongst the Middle Eastern and Gulf countries with regard to the percentage of smokers (WHO, 2006a, Schieber, 2002, Khoja, 2007). However, it should be noted that the Saudi Arabian figures may not be completely accurate, since smoking of the 'hubbly-bubbly' is more popular than smoking cigarettes. In one study, the 'hubbly-bubbly' was estimated as being used by 60% of the male youth, whereas those smoking cigarettes was estimated at only 40% (MOH, 1999).

Traffic accidents are the cause of 4.8% of all deaths in Saudi Arabia, representing one of the main causes of death in the country (MOH, 2005). Accidents are the main cause of

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casualties in males aged between 15-30 years (MOH, 2005). It has been estimated that there are 22 deaths on the roads every day. The frequency and incidents of traffic accidents amongst the expatriate population is higher than from Saudi nationals (WHO, 2006a). Riyadh has the highest number of deaths per year in comparison to other Saudi Arabian cities, which is 7,554 deaths (MOH, 2005). In 2002, seven billion dollars was spent relating to accidents in Saudi Arabia (WHO, 2006a).

The study addresses some healthcare indicators such as expatriate life expectancy, crude birth rate per 1,0000, infant mortality rate per 1,000, and access to safe water. However, due to the limitation of the study, the writer used Saudi health status population data, which includes both expatriate and Saudi citizens. Generally speaking, health status in Saudi Arabia has improved during the last four decades. The life expectancy at birth was less than 50 years in 1974 but reached 73.1 years in 2006 (Central Department of Statistics & Information, 1974, MOH, 2007). This life expectancy is one of the highest in the Middle East but the lowest among Gulf countries (which have a similar income to Saudi Arabia) (Schieber, 2002, Khoja, 2007). It has been predicted that life expectancy will be 77 years by 2020 (Schieber, 2002). The crude birth rate per 1,000 live births dropped from 43.3 in 1993 to 24.9 in 2006 (WHO, 2006a, MOH, 2007). However, the crude birth rate was still the highest amongst Gulf countries in 2005 (Khoja, 2007). The infant mortality rate per 1,000 live births has dropped from 58 in 1982 to 20 in 1997 (Schieber, 2002). The infant mortality rate is one of the lowest rates in the Middle East and North Africa, however, the infant mortality rate was highest in comparison to other Gulf countries in 2005 (Khoja, 2007). The infant mortality rate has been predicted to drop to 9 by 2020, which will be closer to the rate of other Gulf countries (Schieber, 2002).

Saudi Arabia has two indicators that look like contradicting indicators, under-nutrition and over-nutrition (obesity). Amongst Middle East countries, the malnutrition indicator in Saudi Arabia is average, but is the worst amongst the Gulf countries, as 20% of children under 5 years are stunted (height versus age is less than normal), and 14% demonstrate a weight less than they should for their age (because of the wasting or stunting, or both) (Schieber, 2002).

In addition, over 95% of households have access to safe water. This percentage is lower than other Gulf countries except Oman, which recorded 88.5% of households with safe water in 2005 (Khoja, 2007). Furthermore, the higher standards of living and the substantial growth of health delivery services have led to an increase in life expectancy as well as a

reduction in health-related deaths. All the above-mentioned facts have increased the demand on health services.

The definition of 'expatriate' and other terms describing this group of workers is highlighted overleaf.

1.5 Expatriate Workers and Terms to Define Them

There are different terms from different articles that describe expatriate workers, such as immigrant, migrant, ethnic minority, foreign worker and labour migrant (Bollini and Siem, 1995, Anikeeva et al., 2010, Tharathep, 2010, Chatterjee and Nielsen, 2011, WHO, 2006a). However none of the above-mentioned terms distinguish the migrants working in personal or house services such as housemaids or private drivers from business type jobs. In this study, the term 'expatriate' refers to migrant workers in the private sector. This definition includes temporary labour migrants (also known as guest workers or overseas contract workers) and highly skilled and business migrants that fall under the category of international migrants (UNESCO, 2010). In addition, this definition has also been used in different reports and papers within the GCC context (Kapiszewski, 2006, Shah, 2009). An expatriate worker in Saudi Arabia is regarded as a minority within the total population, but a majority within the working population.

1.6 CEBHI versus Cooperative Health Insurance

As stated in section 1.31, Saudi Arabia is a monarchy and its constitution is based on the Holy Quran and the Sunnah (Prophet Mohammed's recorded sayings and actions).

Islamic law provides an ideological base that encompasses and regulates all activities of both government and society as a whole. Some Islamic scholars believe insurance is not permissible in Islam, resulting in this view, having delayed the health insurance legislation process. However, cooperative health insurance and not for profit health insurance is permissible in Islam.

The term 'co-operative health insurance' has been used for CEBHI, which has led to legislation passing, but it has been suggested that CEBHI does not meet the criteria of co-operative health insurance, because the money goes back to the insurance companies (Al-Dussary, 2009). There is also evidence from other places such as West Africa, where people have had poor experiences with other kinds of insurance. Therefore, the term 'mutual health organization' is used as a means of gaining acceptance (Wang et al., 2010).

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In this chapter, the aims and objectives of the study have been illustrated. In addition, a background regarding the country study has been highlighted. This background includes the influence of the political system on health insurance, and the Saudi Arabian population demographic characteristics include the expatriate demographic characteristics.

The next chapter discusses two main issues. One is the literature review of the characteristics of Saudi Arabia in terms of its development and income. This review includes the characteristics of CEBHI in terms of its type (private or public), and how expatriates access medical care prior to and after CEBHI.

Two conceptual frameworks of the study are highlighted and how access to medical care measures includes access to medical care definition. At the end of the next chapter, a comparison of CEBHI with employment based health insurance in the United States and how CEBHI mitigated some of the disadvantages of employment based health insurance in the United States are also outlined.

Chapter 3 highlights the number one objective of this thesis. It begins with a brief overview of the different health financing mechanisms used for financing employment based health insurance. A brief discussion then follows regarding how Saudi Arabia finances its healthcare systems in comparison to GCC and other high and low income countries, and concludes with the relevant results of this thesis.

In Chapter 4, the main methods used within this thesis are defined. These include the study type, place of study, survey method, sampling method, sample size, and questionnaire development method. This chapter also addresses how the pilot study was conducted and its output. The chapter also determines the main study variables and how these were measured, by addressing how the analysis was conducted during the study.

Chapter 5 mainly highlights the justification for assembling the samples into four groups and provides a comparison of the personal and workplace characteristics of the study groups in relation to their access to medical care. In addition, the percentage composition of each group against the total sample size will be presented according to their CEBHI coverage status and responsibility for payment of medical care expenses before and after CEBHI. This chapter concludes by answering how much the place of study represents the entire expatriate population and the extension of the study sample to the place of study in their characteristics.

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Chapter 6 presents the main study findings. These include how insurance impacts on access to medical care, including both personal and workplace characteristics.

Chapter 7 the main focus is to link the study's main findings with the literature. These findings are not only associated with the impact of insurance on access to medical care, but also how the employers' attitude towards medical care payments influenced expatriate access to medical care before CEBHI. The conclusion and recommendations have been mentioned at chapter 8.

2 Chapter 2: Literature Review and Conceptual Framework

2.1 Structure of the Chapter

This chapter highlights two main components of the study, the literature review and thesis conceptual framework. Below is a description of each component:

- I. Literature review. In order to link the thesis to the literature, many issues have to be identified. First of all, Saudi Arabia, the place of study, must be compared to high-income countries in regard to the relationship between access to medical care and health insurance. In addition, Saudi Arabia shares some characteristics of developing countries; therefore, the impact of health insurance on access to medical care should also be reviewed in developing countries. A framework was developed to link Saudi Arabia with high-income countries as well as developing countries. This framework will be explained in section 2.3. Secondly, it is important to consider whether the CEBHI is private or public, and the specific roles of private health insurance in both developing and developed countries. Once these two questions are answered (sections 2.4 and 2.5), the main gap in knowledge will be explored, with regard to the role of private health insurance in achieving universal access to medical care and linking it to the study objectives. Thirdly, understanding the status of expatriates in regard to their access to medical care before CEBHI is very important when assessing the impact of CEBHI. Sections 5.6 and 5.7 will not only explore how expatriates accessed medical care before and after CEBHI, but also who bore the responsibility for payment of such medical expenses.
- II. Study conceptual framework. Section 2.8 will highlight the conceptual framework that was adapted from Andersen's behaviour model to achieve the thesis objectives. Section 2.9 provides a definition of access to medical care that is linked to the study framework. The definition of access to medical care and the measures used will be linked to existing literature in section 2.11. A comparison of CEBHI with employment-based health insurance in the United States will be provided to draw similarities and differences between the two schemes. Finally, a summary will be provided about how CEBHI mitigated some of the disadvantages of employment-based health insurance in United States.

Overleaf is a brief description of the method used for the literature review and the development of the thesis conceptual framework.

2.2 Methods

2.2.1 Literature review

The literature was searched via the following areas:

1. The University of Liverpool's electronic databases such as Scopus, Science Direct, ISI Web Knowledge, JSOTOR, and Pub Med. In addition, references at the end of relevant journal articles were accessed.
2. Specialised websites: The World Bank, USAID, WHO, International Labour Organization, Google Scholar.
3. Personal visits to libraries:
 - a. In the United Kingdom, including Donald Mason Library and the LSTM library. In addition, the two main libraries at the University of Liverpool, the main library at the University of York, the main library at the London School of Hygiene and Tropical Medicine, and the main library at the London School of Economic and Political Sciences.
 - b. In Saudi Arabia, libraries were visited including that of the King Saud University, King Abdul-Aziz City for Technology and Sciences, the Ministry of Labour, the King Fahd National Library and the Ministry of Economic and Planning.
4. Theses available at the above-mentioned schools or universities as well as British Library (Ethos) and ProQuest dissertations and theses database.
5. Documents from different Saudi government agencies including the Ministry of Health, the Council of Cooperative Health Insurance (CCHI)¹, the General Organization of Social Insurance (GOSI), and the Ministry of Economics and Planning.
6. Conference papers on Saudi Health Insurance that were held in Saudi Arabia.
7. All GCC countries' Ministry of Health websites were visited.

The literature review strategy was carried out in four stages. One, the factors that influence access to medical care and healthcare coverage, with an emphasis on expatriate and minority populations was looked into. Two, the main factors that influence the impact of health insurance on access to medical care were identified. Three, the impact of health insurance on access to medical care, with an emphasis on the expatriate and minority

¹ The Council of Cooperative Health Insurance (CCHI) is the governmental body that is responsible for regulating and monitoring the universality of health insurance coverage

populations was included in the research. Four, the impact of employment based health insurance on access to medical care, with more focus on the expatriate and minority populations. More specifically, the following are the research terms used: access to medical care and health insurance, access to healthcare and health insurance, impact of health insurance on access to medical care, impact of health insurance on access to healthcare, impact of health insurance on utilisation of healthcare, and healthcare coverage.

The following words were also included in the research:

1. Employment, employers, employees
2. Minorities, ethnic group, expatriates, vulnerable population
3. Private, voluntaries, community health insurance, social health insurance
4. Developing, developed, high-income, low-income, Middle East, Arab, Islamic,

Furthermore, similar key words were used in the Arabic language when researching in Arabic search engines. Finally, key words regarding Saudi healthcare systems were used, including healthcare systems in Saudi Arabia, healthcare in Saudi Arabia, Saudi health insurance, access to healthcare in Saudi Arabia, health care coverage, and healthcare utilisation in Saudi Arabia.

2.3 Conceptual Framework for the Comparison of Health Financing in Saudi Arabia and other Countries

Most literature regarding healthcare financing focuses on the differences in financing healthcare between countries including Latin America, Far East Asia, Western, Central and Eastern Europe (Baeza and Packard, 2006, Arredondo et al., 2004, Wagstaff, 2005, WHO, 2009a, Saltman et al., 2004). Other articles examine the financing of healthcare for special economic or political groups including the OECD, the former Soviet Union, or the European Union (Kutzin et al., 2010, Wagstaff, 2009, Thomson et al., 2009). Another common characteristic of existing literature is that it addresses the financing of healthcare based on the development stage of the country. These articles usually categorise countries based upon their income: developed countries are usually high-income countries and developing countries are usually classified as low-income countries or those in economic transition (McIntyre, 2007, Carrin and James, 2004, Gottret and Schieber, 2006). Financing of healthcare systems in some GCC countries has been discussed but only briefly and in the context of upper-middle income countries (Sekhri and Savedoff, 2005, Sekhri et al., 2005). In these articles, Saudi Arabia was classified as an upper-middle income country, but in 2010,

Chapter 2: Literature Review and Conceptual Framework

the World Bank classified Saudi Arabia as a high-income country (The World Bank, 2010). Saudi Arabia is also a member of the G20².

There are some countries that can be classified as high-income developing countries. These countries share income status with developed countries but share other features with developing countries, such as literacy rates and systems development, as illustrated in Table 2.1. The member countries of the Cooperation Council for the Arab States of the Gulf (united under the GCC) provide a good example of high-income developing countries. The Council consists of six countries: the Kingdom of Saudi Arabia, Kuwait, Qatar, the Kingdom of Bahrain, Oman and the United Arab Emirates. These are considered high-income countries as per the World Bank classification of level of income (The World Bank, 2010)³. GCC countries also have a large urban population similar to high-income countries (see Figure 2.1). In addition, the GCC countries are in the process of developing their own Currency Union (AlKholifey and Alreshan, 2010).

² The Group of Twenty (G-20) Finance Ministers and Central Bank Governors was established in 1999 to bring together systemically important industrialized and developing economies to discuss key issues in the global economy G-20 (2010) What is G-20.mm

³The World Bank classifies economies based on Gross National Income (GNI) per capita. The World Bank uses the World Bank Atlas methods to group the countries. Economies are grouped into low income, \$1,005 or less; lower middle income, \$1,006-\$3,975; upper middle income, \$3,976-\$12,275; and high income, \$12,376 or more.

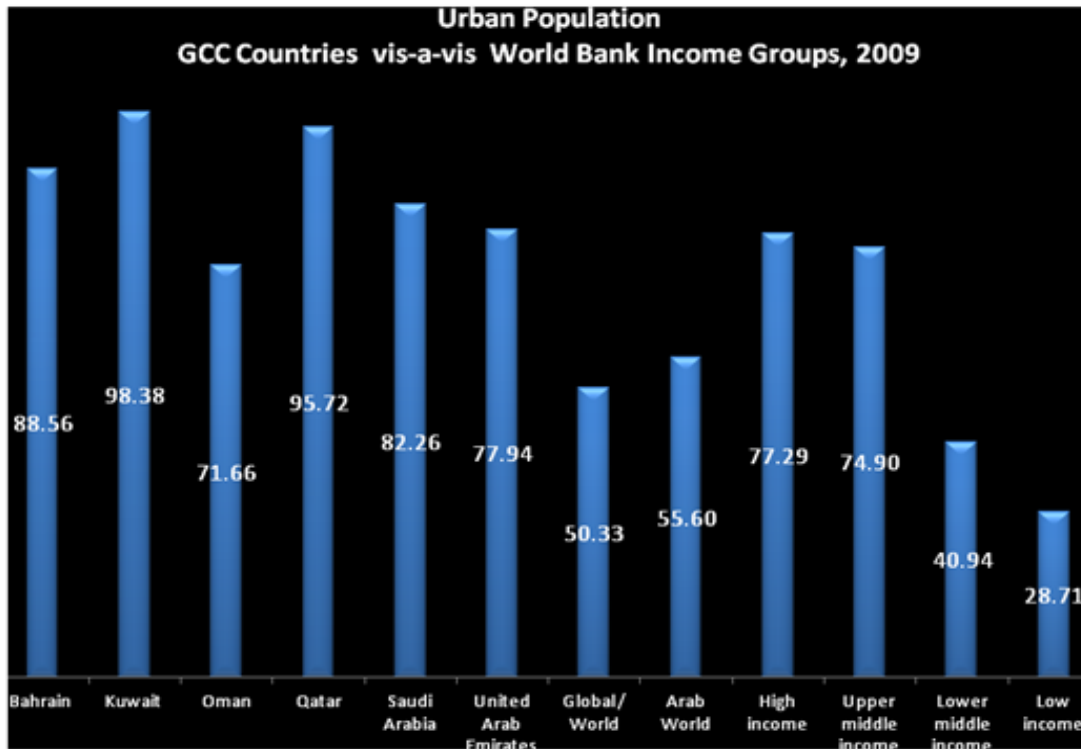
Table 2.1: Percentage of Nationals and Expatriates in the Population and Labour Force of GCC Countries (2005) and Adult Literacy Rate (2007)

Country	Population ^a		Labour Force		Adult Literacy Rate (% aged 15 and above) in 2007 [*]
	Total (000s)	% Expatriates	Total (000s)	% Expatriates	
BAHRAIN	727	40.7	272 ^c	61.9	11.2
KUWAIT ^b 2007	3,328	68.8	2,048	84.8	5.5
OMAN	2,567	24.4	859 ^d	64.3	15.6
QATAR	813	78.3	120 ^c	81.6	6.9
SAUDI ARABIA	24,573	25.9	7,176 ^d	55.8	15
UAE	4,496	71.4	1,356 ^d	89.8	10
UAE 2006 ^e	5,600	84.6	F	F	
ALL GCC Countries	35,862	35.7	11,103	Approx. 70.0	

Sources: (Shah, 2009)

^a (United Nations, 2006); ^b PACI 2005 and 2007; ^c (Kapiszewski, 2001); ^d (ESCWA, 2001); labour force as assessed in 2000; ^e (AMN, February 2008)
^f The expatriate labour force was estimated in April 2008 to be 3.11 million (AMN, April 2008). Assuming the expatriate component to be 90% of the total, the total labour force would be estimated to be about 3.45 million.
^{*} (UNDP, 2007)

Figure 2.1: Urban Population of GCC Countries Compared with World Bank Income Groups, 2009



Designed by the author based on the World Bank database

On the other hand, these countries share characteristics such as literacy rates, health profiles, processes, healthcare delivery, and world-wide governance indicators (WGI)⁴ with developing countries (Kaufmann et al., 2009). All GCC countries have financial challenges in many areas, one of which is health financing (WHO, 2006b, WHO, 2006c, WHO, 2006g, WHO, 2006e, WHO, 2006d, WHO, 2006f). However, these countries have invested heavily to improve their human development. Therefore, they were classified as the highest human development countries amongst Arab states and as having very-high human development or high human development in the United Nations report in 2010 (UNPD, 2009, UNDP, 2010).

Unlike high-income countries where people are the main source of a country's funds (Wang et al., 2010), or low-income countries where external resources are one of the main sources of their income (ILO, 2008), GCC countries finance their healthcare services through natural

⁴ The six measures of governance indicators are: 1) Voice and Accountability (VA); 2) Political Stability and Absence of Violence (PV); 3) Government Effectiveness (GE); 4) Regulatory Quality (RQ); 5) Rule of Law (RL); and 6) Control of Corruption (CC)

resource revenues (oil or gas) . For example, oil income represented 90% of Saudi government income in 2007 (Ministry of Economy and Planning, 2008).

The GCC countries also have unique demographic characteristics that impact how healthcare systems must be financed. For example, the percentage of expatriate residents is very high, as illustrated in Table 2.1. The expatriate population dominates the workforce in the private sector in Saudi Arabia, comprising approximately 90% of the total workforce (Ministry of Labour, 2009a). This is very important in determining who is responsible for financing healthcare for this group while maintaining equitable access to healthcare.

In summary, GCC countries including Saudi Arabia, share some characteristics of high income countries such as income, and having a high percentage urban population. Alternatively, GCC countries share some characteristics of developing countries such as literacy rate and systems development. Therefore, the literature review will include both high income and developing countries, since the country of study shares some characteristics of both.

Below is a brief discussion on the characteristics of CEBHI in terms of its status as a share between public and private insurance scheme. Once the CEBHI characteristics are defined, the main gap in knowledge will be explored, with regard to the role of private health insurance in achieving access to medical care in the context of high income and developing countries, as well as linking it to the study objectives.

2.4 The Link between CEBHI, Private and Public Health Insurance

The Organization for Economic Co-operation and Development (OECD) distinguishes public from private insurance on the basis of the source of funds (Jost, 2001). Private health insurance is often characterized as voluntary for-profit commercial coverage in contrast to mandatory, publicly financed and publicly managed insurance. Ultimately, all money comes from household or employer income, but in public insurance programs, this money is channelled through the state via general or social insurance tax, whereas in private insurance the money is paid directly to the risk pooling entity (Sekhri and Savedoff, 2005).

The CEBHI shares the nature of the health plan with public insurance (mandatory) and shares with private health insurance the source of funds. In addition, according to Saudi cooperative health insurance, it is not permitted for a health insurance company to reject any

application for cooperative health insurance, but health insurance companies provide coverage based on risk pooling, similar to the voluntary health insurance. CEBHI shares the way premiums are set with private health insurance, based on the expected risk of an individual rather than income; private health insurance and the CEBHI link premiums to the health status of the member and if he/she has a spouse or children.

The distinction between social health insurance and private health insurance is in the form of the contract between the risk pooling entity and insured individual or groups (Drechsler and Jutting, 2007). Private insurance is based on a contract between the insurer and the insured individual or groups. The level of insurance premium is determined on the benefit coverage, whilst SHI is based on tax as a contribution.

This study adopts the view that the difference between private health insurance from public health insurance is based on the source of funds. Whereas the source of public funds is taxes (general/social security taxes), the source of funds in private insurance is the direct payment of premiums to insurers (Sekhri and Savedoff, 2005, Drechsler and Jutting, 2007). Based on this definition, private health insurance could be mandatory insurance or voluntary insurance. CEBHI is private health insurance but it is mandatory by law for all expatriates.

Before discussing the relationship between access to medical care and access to health insurance, the roles of private health insurance in both developing and developed countries will be studied because the objective of private health insurance may not be the same in each, thus different assessment may be required to review the impact on access to medical care.

2.5 Roles of Private Health Insurance in Developing and Developed Countries

In order to assess the impact of health insurance on access to medical care, the role of private health insurance has to be defined. The role of private health insurance is unlikely to be the same in high and low-income countries. The role in many lower and middle-income countries is to provide primary coverage and the only form of risk pooling is for those who are employed. Alternatively, in most high-income countries, private health insurance provides supplementary or complementary coverage to predominantly publicly funded systems (Sekhri and Savedoff, 2005).

In some high-income countries such as the United States, the role of private health insurance is to provide risk pooling for some portion of the population. Employer-Sponsored

Insurance (ESI) benefits are the most common form of health insurance for non-poor and non-elderly individuals in the USA. In 2005, 62% of those aged below 65 were covered by an ESI plan, with 70.6% of working adults covered, 37.7% of non-working adults covered, and 57.5% of children covered (Fronstin, 2007). In 2006, 60% of employers were offering health benefits (Fronstin, 2007). The United States is one of the few developed countries, if not the only developed country, where the private health insurance role is dominant, mainly via the ESI. Due to the similarities between the role of private health insurance in the United States and the CEBHI in Saudi Arabia, the CEBHI and ESI will be compared later in section 2.11.

The other roles of private health insurance or Volunteer Health Insurance (VHI) can be classified into substitutive (or duplicate as per Savedoff and Sekhri (2005)), compulsory, or supplementary VHI (Sekhri and Savedoff, 2005, Elias and Sarah, 2002). VHI can be used as a substitute for compulsory health insurance. People can be eligible for substitutive VHI based on their income and employment status (Germany and the Netherlands), or their occupation (civil servants in Spain and Germany) (Elias and Sarah, 2002). Complementary VHI provides health coverage for services that are not covered by mandatory insurance. It can also provide cover for reimbursement of a co-payment, ambulatory and outpatient care in Denmark, France, and Ireland respectively (Elias and Sarah, 2002). Supplementary VHI can be used to expedite access to different medical services and increase consumer choice for different medical services (Elias and Sarah, 2002). Therefore, this form of private health insurance enables insured people to shorten the waiting time in the public services and increase their choice of healthcare providers (Mossialos et al., 2004).

The role of private health insurance is very limited in developed European countries. In Germany, high-income households can opt out of Social Health Insurance (SHI) and pay for private health insurance (Schoen, Osborn et al. 2010). In France and Australia, private health insurance provides supplementary cost sharing and expands benefits (Schoen, Osborn et al. 2010). In Canada, the role of private health insurance is to provide supplements to public-coverage benefits not included in public coverage such as dental, prescription drugs, physiotherapy and home healthcare ((Schoen, Osborn et al. 2010).

In Scandinavian countries such as Sweden and Norway, private health insurance helps to expedite access to healthcare with a limited tiny share of total healthcare expenses (Schoen, Osborn et al. 2010). In New Zealand, private health insurance plays a limited role, mainly to pay for care in private hospitals (Schoen, Osborn et al. 2010). In The Netherlands, although

private health insurance is tightly regulated, it provides the required core benefits. Those with private health insurance purchase extra coverage for physiotherapy and dental care. In Swaziland, the role of private health insurance is similar to The Netherlands with regard to dental care, but people purchase extra coverage for some cost sharing, and seeking healthcare outside their region. Mossialos, Thomson and Busse (2004) made a remarkable observation in regard to the effect of health insurance on access to healthcare in Europe. They reported that the effect of VHI on access to healthcare is influenced partially by the characteristics of the statutory healthcare system.

The role of private health insurance in developing countries varies from pure commercial to small non-profit schemes and is different from developed countries, as private health insurance is based on the economic, social and institutional setting (Drechsler and Jutting 2007). For example, controlling the increase in healthcare costs was the main reason for expanding private health insurance in the Middle East and North Africa (Drechsler and Jutting 2007). In addition, the scheme has excluded low-income, high-cost people, and the rural population (Drechsler and Jutting 2007). In South Asia and Sub-Saharan Africa (except South Africa) the role of private health insurance is limited, but other forms, such as non-profit community and micro insurance, are widespread (Drechsler and Jutting 2007; Berkout and Osstingh 2008).

Private health insurance is developed in Latin America and the Caribbean countries, but it faces many challenges (Drechsler and Jutting 2007). When it was introduced in Latin America, it did not improve health insurance systems indicators (Drechsler and Jutting 2007). It covered only a limited population (including those with the highest incomes), and the rest of the population were left without health insurance at all or with limited benefits SHI. This created a lack of equity and efficiency in countries including Argentina, Colombia, Peru, Brazil and Chile (Drechsler and Jutting 2007).

In summary the role of private insurance is very limited in high income countries with the exception of the United States of America, whereas the role of private health insurance in low and middle income countries is to be the primary source of accessing healthcare services. Understanding the role of private health insurance is very important in evaluating its impact on access to medical care. This thesis took advantage of the natural experiment and used a novel approach to examine the combined effect of having health insurance and the impact on employer willingness to pay medical care expenses before CEBHI, as will be discussed in the next section. This approach will assess if the CEBHI has made an impact

on access to medical care, and whether it is a real impact, regardless of the employers' previous behaviour in regard to payment of medical expenses, or if the impact of CEBHI has helped only in changing payment from cash to other sources.

The following section explains the different forms of access to medical care in Saudi Arabia. This is essential in order to assess how much the CEBHI has changed access to medical care for expatriate workers.

2.6 Different Ways Expatriate Workers Accessed Medical Care in Saudi Arabia

Before CEBHI:

Leading companies and large companies provide health insurance as part of their employment packages. However, health insurance coverage differs from one company to another (Mufti, 2000). Some companies have traditionally provided their own clinics, where employees can receive medical care, and when an employee's health requires a secondary level of care or requires inpatient services, the clinic would arrange the necessary care through other services (Al-Rabeeah, 2009).

Some companies have traditionally signed a contract with an external healthcare provider to provide medical care for their employees (Al-Rabeeah, 2009). In this case the employee would obtain permission from his employer ahead of time before seeking medical care. The scope of the medical care coverage varies from one employer to another; whilst some employers provide full coverage by either cash through insurers or via full reimbursement, some firms make reimbursement following the employee having accessed medical services. The reimbursement percentage varies from one company to another (Al-Shalan, 2010). Other companies do not pay for their workers' medical care expenses; workers in these companies are responsible for paying for their own medical services (Al-Rabeeah, 2009).

Therefore, it was expected that employers would vary in their actions towards complying with the new law, and subsequently this would impact on their expatriate employees' access to medical care. Figure 2.2 illustrates the means of accessing medical care before CEBHI from an employee's perspective.

Figure 2.2: Summary of the Pathways Expatriates Access Medical Care Before and After CEBHI from an Employee Perspective

	Through Employers' own clinics/ infirmaries	Direct Cash Payments -out-of-pocket shared payment with employers	Employers have a contract with a healthcare providers	Through insurance companies
Before CEBHI	✓	✓	✓	✓
After CEBHI	✗	✓	✗	✓

Source: Author's Design

After CEBHI:

After the implementation of CEBHI, the methods of accessing medical care services changed. According to Cooperative health insurance law, it is prohibited for any employer not to participate in CEBHI even those involved in private healthcare (CCHI, 2009b). So the signing of contracts and providing services through their own clinics is not acceptable (CCHI, 2009b) (see Figure 2.2). After CEBHI, the only two ways to access medical care for expatriates are:

Through Health Insurance:

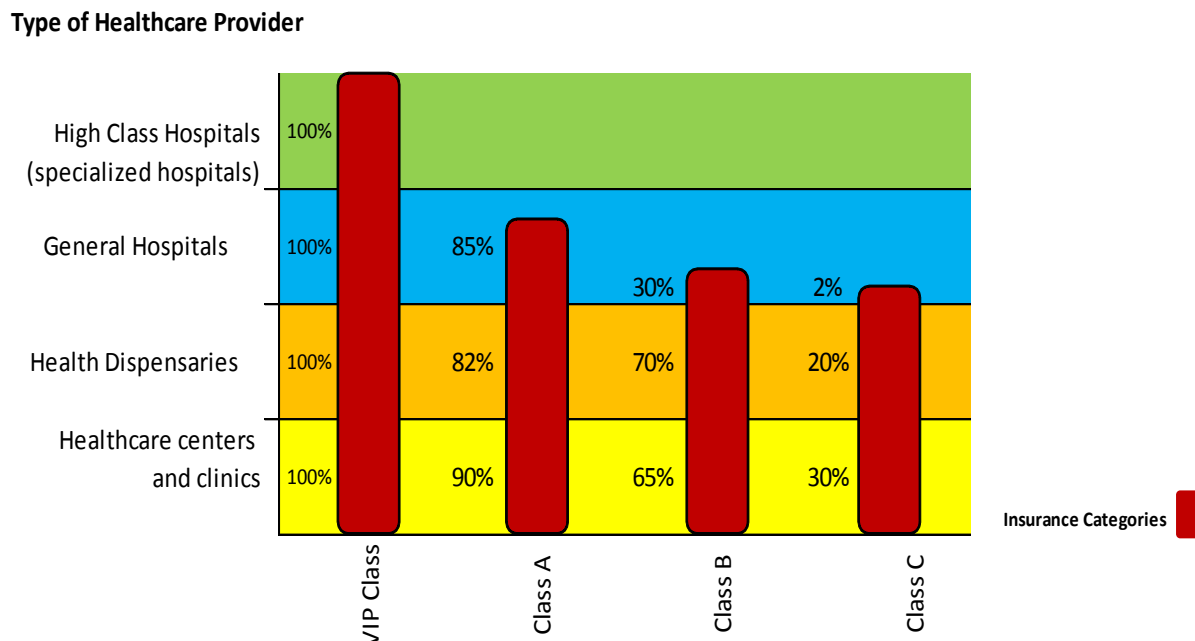
Although there is a unified minimum medical care benefit package in CEBHI, there are different classes of health insurance plans (the benefits cover under CEBHI is illustrated in Table 3.3, Chapter 3, Page 89). Health insurance providers offer different health insurance programs starting from the basic plan (each insurer uses a different name for such plans, including C Plan or Balsam Direct) up to the highest level or elite plan (VIP, Gold Balsam), each with a corresponding maximum limit (Bupa, 2010, Al-Shalan, 2010, Elhout, 2010).

Ideally, each program has different affiliated medical care providers, hospitals, clinics or both. These facilities provide a range of services from primary to tertiary healthcare services (Bupa, 2010, Al-Shalan, 2010, Elhout, 2010). All insured expatriate workers can access these providers accordingly, but they may experience a different quality of medical care (Al-Osaimi, 2009). The quality and services provided in one class of health insurance plan such

as the basic plan, is unlikely to be the same as those provided by the higher quality health insurance plans (Al-Osaimi, 2009).

Figure 2.3 illustrates the actual relationship pertaining to expatriate worker access to different types of healthcare providers in accordance with insurance coverage categories. It is noted that those having the highest class of insurance category, can access all types of healthcare provider (from healthcare centres and clinics to high-class hospitals or specialized hospitals); whereas those having the lowest insurance category, have very limited access, i.e. general hospitals. The basic health insurance plan has limited affiliated hospitals and clinics, and these are known to provide poorer quality services than those accessible via the VIP or Golden plans. Employees having a VIP or Golden health insurance plan can access all hospitals and clinics including those listed under the basic health insurance plan, but those having a basic health insurance plan, can only access those clinics or hospitals affiliated under their plan (Bupa, 2010, Al-Shalan, 2010, Elhout, 2010). If a patient with a basic plan requires a clinical procedure provided by a healthcare provider not within the affiliated list of hospitals or clinics, permission and referral from their insurer must be obtained. In all programs, expatriates could attend one of their listed hospitals directly without going through a referral system. In other words, there is no system that forces expatriate workers to seek medical care at a primary healthcare facility before going to a secondary healthcare facility. However, not all clinical services are available in all hospitals. Therefore, some people having a basic plan may not find all the services (particularly tertiary healthcare) available in their plan, and therefore they must seek the advice of their insurance company (Bupa, 2010, Al-Shalan, 2010, Elhout, 2010).

Figure 2.3: Actual Practice of Some Employers and Insurers in Regard to the Way Insurance Plans are Provided



Source: Author's Design⁵

Through Direct Payments:

Although CEBHI is compulsory and all expatriates working in the private sector must be insured, those expatriates who are uninsured, for different reasons, have access to medical care only through cash. Expatriate workers can also opt to pay through direct cash payments to providers. Payment schemes can either be out-of-pocket (OOP) employee payments or co-sharing with the employer. In addition, other medical care access options are available, such as companies providing medical care services to their employees by their own company clinics or infirmaries or by contracting healthcare providers to render medical services for workers.

2.7 Responsibility for Payment of Medical Care Expenses before and after CEBHI

Historically, prior to oil discovery, the Public Health and Ambulatory Department law stated in article 39 that drug prescriptions were to be given according to a pre-determined cost (Al-Rabeeah, 2000). Hospital system law published in 1927, stated in article 32 that the medical facilities that provided operations and other medical services, had to be provided for those

⁵ The figure above is only a theoretical illustration for the purpose of visualizing the discussion in the "Benefits Package" section. The percentage values have no source data set to support its accuracy, but have been developed by the author for discussion purposes.

patients capable of paying the expense (Al-Rabeeah, 2000). The amount of money taken was an amount agreed upon between the patient and the medical director (Al-Rabeeah, 2000).

In 1949, when oil income started to rise, the general government expenditure was increased including healthcare expenditure. In 1951, when the Ministry of Health (MOH) was established, medical treatment became free for Saudi and non-Saudi residents alike. However, the labour law published in 1969, stated that employers were required to provide medical treatment for employees with the following conditions:

- If an employer had more than 50 employees, then the employer had to hire or contract a medical Doctor to take care of their health.
- If an employer had more than 100 employees, the employer had to pay for the employee's treatment in hospitals and for medical procedures.
- If an employer had more than 500 employees, the employer had to pay for the treatment of the employee's dependents if the worksite was outside of a main city.

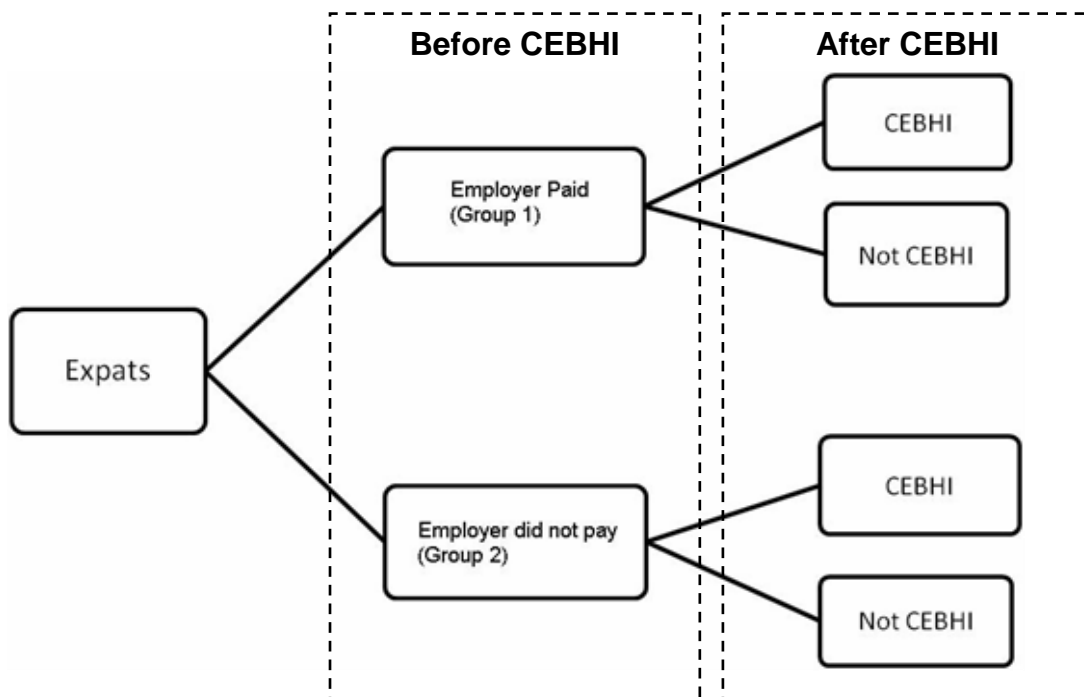
Based on the above laws, the government forced some employers to provide healthcare services for their employees. However, the law was not enforced for a variety of reasons. First of all, the law did not address the nationality of the workers that would be affected (Saudi or non-Saudi) because the Saudi government is obligated to provide free healthcare services for its citizens, as per article 31 in the basic role of governance (Government, 1992). In addition, when private sector workers visited public health centres, they were never asked to provide evidence regarding their company's size or their nationality (Al-Rabeeah, 2000). In the other words, there was no mechanism or clear method as to how the law should be implemented. Secondly, the number of all workers was less than 1,200,000 and therefore the load on medical services was insignificant (Al-Rabeeah, 2000), Resulting in the government hospitals and healthcare centres accommodating patients without negatively impacting on the operation of existing health services (Al-Rabeeah, 2000).

According to the labour law, employers must bear the responsibility of paying all necessary medical expenses for their expatriate employees (Ministry of Labour, 2006a). Before CEBHI, employers used different strategies to fulfil this commitment, because expatriate workers had access to medical care only through private healthcare services. However, some MOH hospitals had begun charging the full cost of services for non-Saudis, regardless of whether they had been referred (Al-Rabeeah, 2009).

Figure 2.4 below illustrates the relationship between the expatriate's status in regard to the employers' responsibility of paying for medical expenses before and after CEBHI. Group 1 represents the employers who paid their expatriates' medical expenses either by cash, or by contract with one of the healthcare providers, or provision of healthcare services through their own clinics. Since the CEBHI implementation, the employers' behaviour in regard to the payment of medical expenses has shifted into two subgroups. Subgroup one continues to pay their employees' expenses but does not participate in CEBHI for different reasons. Subgroup two participates in CEBHI but does not pay directly for medical expenses.

Group 2 are those employers who do not to pay for medical expenses for their staff before CEBHI, but following CEBHI implementation; they have also split into two subgroups. Subgroup one continues to avoid paying medical expenses. Subgroup two have their employees participate in the CEBHI.

Figure 2.4: Insurance and Employer Payments before and after CEBHI



Source: Author's Design

2.8 Review of Access to Medical Care and the Conceptual Framework for the Study

Historically, researchers have developed different models in order to identify the main components that influence access to medical care (Andersen, 1968, Green and Krueter,

1991, Becker, 1974, Fishbein and Ajzen, 1975, Tanahashi, 1978). However, Andersen has developed a model that brings together different factors in one model, making it one of the most acceptable models, not only in developed countries but also in developing countries (Buor, 2004, Sunil et al., 2006, Liao, 2008).

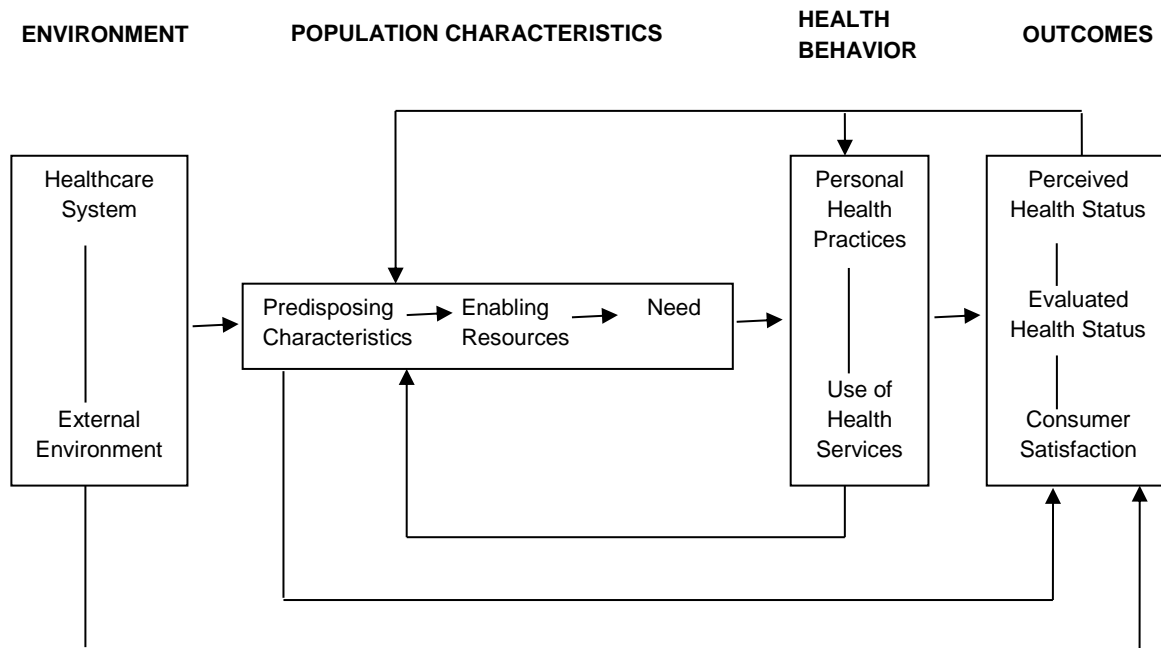
The Behavioural Model of health services used was developed by Andersen in 1960 in order to assess the use of health services (see Figure 2.5). The major goal of the original Behavioural Model was to assist in defining and measuring multiple dimensions of access to care (Andersen, 1995). The Behavioural Model and the concept of access to care have been defined in various ways, measured, and evolved over time in order to respond to emerging issues in health policy and health services delivery (Andersen, 2008). However, the revisions have not changed its fundamental components. Despite continued development, emphasis of the model continues to be on utilisation rather than its effects (Gold, 1998a). The Behavioural Model is not a mathematical model but a framework for analysis. Therefore, it does not dictate the precise variables and methods that must be used (Phillips et al., 1998).

The initial model suggested that the use of healthcare services is a function of a person's predisposing characteristics, the presence or absence of enabling resources and need for care (Andersen, 1995). Predisposing characteristics include elements like demographics (such as age, gender), social structures (as determined by a person's status in a community traditionally measured by education, occupation and ethnicity, coping capabilities when presented with problems and resources available to deal with these problems), health beliefs (a person's beliefs about health and health services) and genetic or psychological characteristics (such as mental dysfunctions, cognitive impairment and autonomy) (Andersen, 1995). The enabling characteristics component of the model refers to personal enabling factors such as a person's income, availability or absence of health insurance, availability of a regular source of care and availability of healthcare services (Andersen, 1995). The community element refers to enabling resources that allows a person access to available healthcare such as the presence or absence of local healthcare providers and facilities, waiting and travels times (Andersen, 1995).

The model also suggested that in order to understand access and its equitable use, the concept of mutability of the different components must be understood in order to explain what determines a population's utilisation of health services (Andersen, 1995). Andersen judged that demographic variables such as age and gender cannot be changed by any

structures or policies to change utilisation patterns and are therefore considered low in terms of mutability. Social structures are also judged as relatively low since the ethnicity of a population cannot be changed, whilst changing the education or occupational structures is not feasible for promotion of access in the short-term (Andersen, 1995).

Figure 2.5: Andersen Behavioural Model



Source: (Andersen, 1995)

Health beliefs can be altered or changed as appropriate, and intervention, such as health promotion activities, can effect behavioural change. Enabling factors have a high degree of mutability in terms of promoting access to healthcare (Andersen, 1995). The need for healthcare services cannot be determined as having a high or low degree of mutability like different factors such as health education programs; change in the financial incentives to seek services could change a population's perception towards their needs for healthcare.

The model has since been widely developed by different authors and critiqued, and has evolved in response to emerging issues and changes in healthcare policy, health services delivery, developments in health services research and medical sociology. The model's evolution did not change the fundamental concepts of the model or their relationship, but rather added these emerging issues to the understanding of health services use.

The Behavioural Model judged that predisposing demographics characteristics (such as age, gender) cannot be changed by the imposition of policies and systems, and are therefore

considered to be low in terms of mutability (Andersen, 1995). Furthermore, social structures such as education and occupation are also judged to have low mutability (Andersen, 1995). These judgments may not be true, especially in the case of expatriates within the private sector of Saudi Arabia. The unique personal and job-related circumstances of the expatriate workers affect their access to health insurance. Whilst some personal attributes do not significantly affect access, a change in some job-related variables directly affects individual access to health insurance as well as the class of health insurance services he can avail, which in turn can directly impact his access to medical care (for example, a change or upgrade in his position is tantamount to an increase in salary).

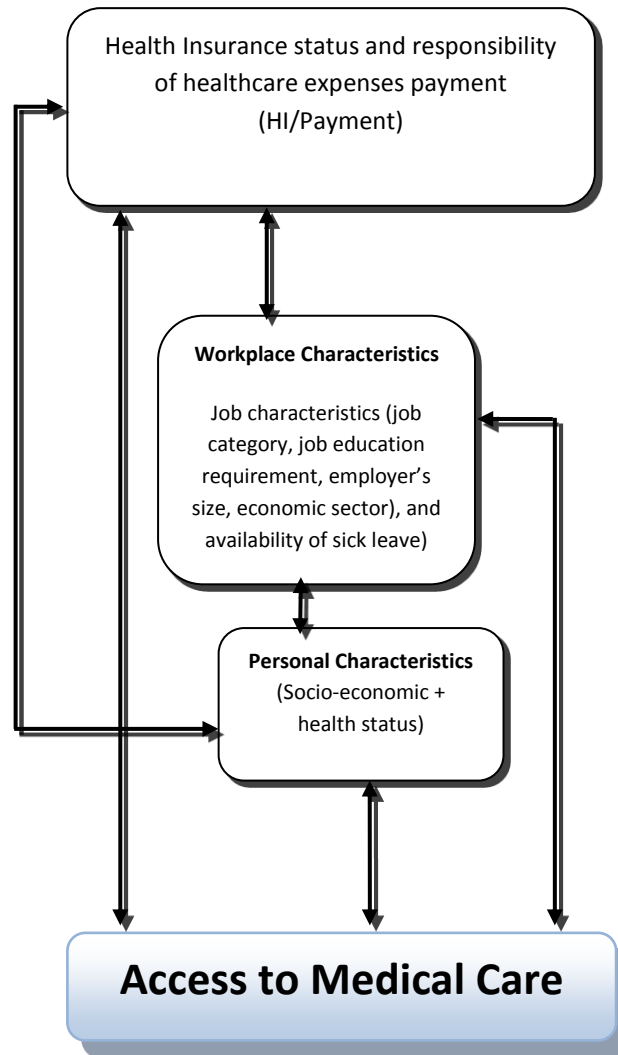
In addition, most expatriates in Saudi Arabia are working in jobs for which they are overqualified (Kasnawi, 2008); most are not employed in a job that reflects their actual education (low skills required for the job compared to a high personal educational level). Therefore, this study has adapted the model to enable segregation of personal characteristics (such as a worker's educational level) and workplace characteristics (job classification). A thesis conducted in Saudi Arabia recommended studying the effect of occupational class on access to medical care, due to the criticality of the occupation status on access to medical care (Al-Yaemni, 2010).

The components of the model have been re-classified to reflect the main components that influence CEBHI and its association with access to medical care; the Andersen model focused mainly on individual seeking behaviour according to their characteristics, but this study recognizes that the influence of workplace characteristics must also be considered.

In addition, recent trends and changes in global public health and national health policies have noted that contextual characteristics as well as personal characteristics are important components in the study of access and utilisation. This emerging development justifies this study's approach to inclusion of workplace characteristics (include employer characteristics), and not only the personal characteristics of our respondents. Therefore, as the research is focused on the impact of the CEBHI on expatriates' access to medical care, the factors that affect an expatriate's access have been re-classified into job-related characteristics and personal characteristics. Job or employer-related characteristics refer to a respondent's employer/company characteristics with respect to its size, economic sector, the availability of sick leave, the respondent's position in the company and job equivalent education required, whilst personal characteristics include socio-economic characteristics (age, income,

education level, nationality, language, marital status) and health status. Figure 2.6 overleaf, illustrates the initial stage of the study framework for access to medical care.

Figure 2.6: The Initial Stage of Conceptual Framework for Assessing Access to Medical Care

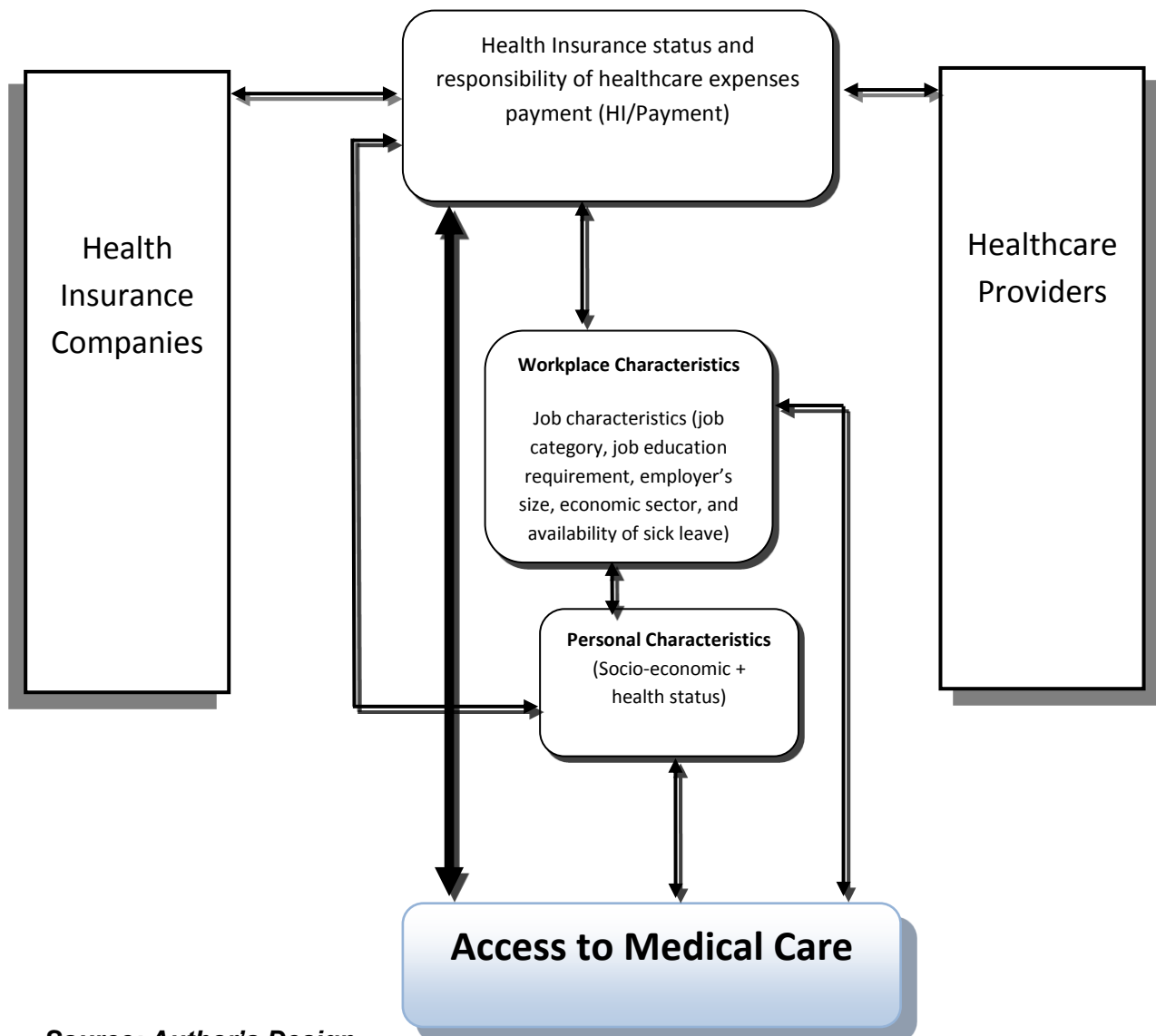


Source: Author's Design

Enabling factors refer to the set-up of the healthcare delivery and its availability. They include the availability of health insurance, the availability of healthcare providers and travel or waiting times. The community's ability to provide access is provider/physician supply, that is, the total number of physicians or healthcare providers in a community as indicated by Gold and Edan (Gold and Edan, 1998). This thesis uses private health sector expenditure, Physician density and nursing density as indicators of supply (further details in Chapter 3, section 3.8.).

Mechanic (1979) said that although the Behavioural Model identified the measure of health coverage as no insurance coverage, basic coverage, and major coverage, it failed to note the degree of coverage or the amount of co-insurance and deductible payments (Mechanic, 1979). In Saudi Arabia, CEBHI established a minimum unified benefits package (more detail in Chapter 3, section 3.7.7), however, insurers provide different classes of health insurance services (such as Class A, B, C, VIP, etc.) as discussed in the previous section. When CEBHI was enforced, employers were bound to pay health insurance coverage for all expatriate employees. Figure 2.7 illustrates the second stage of the study framework for access to medical care, which includes both the supply side (provider) and health insurance companies.

Figure 2.7: The Conceptual Framework after Including the Healthcare Providers and Insurance Companies



Source: Author's Design

The components discussed in the Behavioural Model are used to analyse respondent's patterns of medical care utilisation and to measure access to medical care. In other words, utilisation rates of health services are used as a proxy measure for access (Andersen, 1995). However, because someone may not have the ability to purchase an important prescription medication or be diagnosed by an expensive item of medical equipment, or a Doctor may change his medical decision based on whether or not a patient has enough health insurance coverage, the utilisation rate cannot be used alone as an indicator for equity of access (Institute of Medicine, 1993). An increase in healthcare utilisation may not necessarily indicate better care, and an increase of healthcare utilisation in some medical services may indicate weaker access to other services (AHRQ, 2008). It has been widely established in several studies that barriers that affect access to medical care include the poor quality of services by healthcare providers as well as long travel or waiting times. Andersen's Behavioural Model focused on the use of healthcare as a proxy to access to healthcare. However, it is very important in developing countries where the delivery of healthcare does not ensure that healthcare needs have been met. So utilisation measures in this thesis and the main focus on the Andersen behavioural model have not been measured in terms of consumption or number of visits, but whether a visit to medical care services during the year had occurred (to be elaborated in the next section). Therefore, the principle of elasticity of demand (Ringel et al., 2002)⁶ has not been stressed in this thesis because this principle is associated more when the amount of care delivered is the focus. In addition, the subsequent principles such as moral hazard (Ringel et al., 2002)⁷ or adverse selection (Ringel et al., 2002)⁸ have not been emphasized in this thesis, because CEBHI is a mandatory scheme and therefore all expatriates regardless of health status have to be insured.

Once the definition of access to medical care is discussed in the next section, the final form of conceptual framework and measures of access to medical care will be highlighted at the end of next section.

⁶ The elasticity of demand is a measure of the responsiveness of product demand to changes in one of its determinants. The demand determinants for which elasticity measures are typically computed are the price of the goods or service, the income of the consumer, and the prices of related goods or services.

⁷ "The individual consumes more medical services than he would if he had no insurance".

⁸ "Adverse selection occurs when persons with poor health tend to choose insurance with high benefits and persons with good health tend to avoid such insurance because of its high cost".

2.9 Definition of 'Access to Medical Care'

The focus of this thesis is access to medical care, although it is only one of the measures of health outcomes. Health cannot be guaranteed by simply providing medical care because health outcomes can be influenced by other factors, such as where one lives and how one is socially connected to others, genetic predisposition, global public health measures, and even a change in faith. Nonetheless, receipt of medical care is one of the determinants of health outcomes.

In order to understand the influence of health insurance on access to medical care, it is important to discuss and define 'access to medical care' in the context of this study. Due to the lack of a clear standard of what is considered acceptable or unacceptable access, 'access to medical care' has been considered as one of the most controversial subjects of review with respect to health insurance. The appropriateness of accessed care must be known and measured, but it is very difficult to assess due to the lack of widely accepted standards for many conditions (Kemper et al., 1999). The concept of access has been blurred and used differently by researchers and policy makers alike (Penchansky and Thomas, 1981).

Historical approaches to access have focused largely on utilisation and identifying factors that have an influence on this, as explained in the Behavioural Model in the previous section. Such a model aids the understanding of the elasticity of demand for various kinds of health services (Bakhuti Shengelia et al., 2003). However, others believe that the definition of access should focus on the health system's characteristics rather than on patient health-seeking behaviours (Bakhuti Shengelia et al., 2003). Tanahashi (1979) emphasises the difference between utilization and coverage. He believes utilisation is more about looking into the services and utilisation measurements, which is only indirectly associated with the size of the target population, whereas coverage refers to the relationship between the services and the target population (Tanahashi, 1978).

The simplest way of viewing access to healthcare is via geographic availability (O'Donnell, 2007). However, access can also be defined according to the following four measures: availability, accessibility, affordability and acceptability (Penchansky and Thomas, 1981). These measures have different priorities from one healthcare system to another, since one of the main challenges in any healthcare system is to maintain a balance between cost, quality and access to healthcare. For example, in the United Kingdom, all people who are 'ordinary residents' have the right to be treated through primary and secondary healthcare

providers that are provided by the National Health Service (NHS). The NHS is obliged to ensure that everyone in the country, irrespective of age, gender, or occupation, has equal opportunity to benefit from the best and most up-to-date medical services available (Delamothe, 2008b). Equitable access is “one where individual access and utilisation of services depends on their health status alone” (Delamothe, 2008b). However, others say equitable access means equal use for equal need. The service of the NHS is based on the need, as defined by Doctors and experts, not on patient demand (Delamothe, 2008a). When individuals face a plan choice that limits access to specific providers or an individual’s ability to self-insure, access is undermined. However, others argue that the principle of freedom of choice could conflict with the principle of ‘similar treatment’ (Gold, 1998a).

Having equitable access does not guarantee access to healthcare in a timely manner. Therefore, the importance of improving the quality of services provided to patients such as waiting time, should be taken into account. Leatherman and Sunderland (2004) reported that 20% of patients in the United Kingdom continued to wait more than six months for surgery (Leatherman and Sutherland, 2004). Therefore, in United Kingdom’s healthcare system, since time and quality of services are the main obstacles for accessing healthcare, access is defined as “the ability to obtain effective health services in a timely fashion, when medically needed” (Delamothe, 2008b). So the NHS stress the importance of timescales in accessing medical care when healthcare is needed, because the waiting time of might be one of the main challenges in accessing medical services, but the definition ignores the financial access because NHS provides free medical care services at the point of care.

In the United States, however, access to healthcare used to be considered as synonymous with the availability of financial and health systems resources in the area (Aday and Andersen, 1974). The Committee for Economic Development defines access as “shorthand for peoples’ ability to obtain appropriate care” (CED, 2006). The definition has a financial component and a delivery system component; the financial component links having health insurance with making care reasonably affordable to people, and protecting people from inaccessibility to healthcare due to financial barriers. The delivery system component refers to the removal of transportation and geographic barriers to accessing appropriate professional care (CED, 2006). The financial component and delivery component are critical elements with respect to accessing healthcare in the United States. However, the definition has neglected other barriers including culture and time to access healthcare.

Chapter 2: Literature Review and Conceptual Framework

Other definitions have linked access to health outcomes, as defined by the Institute of Medicine (IOM) as “the timely use of personal health services to achieve the best possible health outcomes” (Institute of Medicine, 1993). This definition must be understood within the context of the objective of the IOM to “develop a way to monitor access to healthcare that will be useful for policy makers” (Institute of Medicine, 1993). The good thing about this definition is to be used to monitor the access to medical care but not to measure it because it will be very difficult to measure the healthcare outcome since healthcare’s outcomes cannot be guaranteed by simply providing medical care. In addition, health outcomes can be influenced by other factors such as where one lives and how one is socially connected to others, genetic predisposition, global public health measures, and even change in faith. Nonetheless, receipt of medical care is one of the determinants of health outcome. Therefore, the term “access to medical care” is used throughout this thesis, rather than access to healthcare because access to healthcare could be influenced by other factors such as access to sanitary water, clean air, etc., whereas access to medical care focuses on access to medical care providers, although it is only one of the measures of healthcare outcome.

Andersen defines access as “the actual use of personal health services and everything that facilitates or impedes the use of personal health services” (Andersen, 1995). This definition has been used in many studies and research in developing countries (Liao, 2008, Buor, 2004, O'Donnell, 2007, Abhijit Banerjee et al., 2004). Andersen’s definition might also be acceptable in developed countries where the quality of healthcare is acceptable and healthcare systems are mature and well-established. However, as reported by other studies from developing countries, compromising quality of the healthcare provider is the main barrier when accessing medical care; being able to be seen by a physician is simply not enough, when the quality of service is below standard (Al-Osaimi, 2009, Al-Omar, 2005, Criel and Waelkens, 2003). The poor quality of medical care might be evidenced in terms of availability of medical equipment, patient referral system, and quality of medical staff as one study (Al-Ahmadi and Roland, 2005) and that merely seeing a physician may not be sufficient enough when measuring access to medical care.

Considering all of the above-mentioned definitions in the context of this study, it has been deemed unimportant to have a unified definition for access to healthcare. However, it is important to have measures of access in order to determine whether access to healthcare has been achieved. Those measures must be associated with health insurance and the role

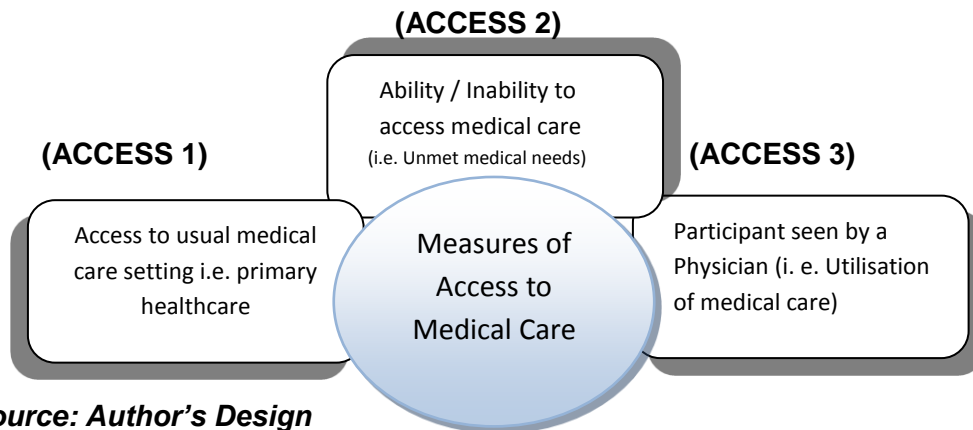
of the insurance scheme, and are necessary as a means of assessing whether the insurance scheme helps increase access to medical care.

Access to medical services is a multifaceted concept that continues to evolve over time because of either change to healthcare structure (relationship between health providers, health insurance, and purchaser), health policy, the environment, the targeted population, or infrastructure, etc. (Andersen, 1995, Gold, 1998b). Disparity in access to medical services can be due to either patients' perceptions of need, barriers to healthcare because of lack of health insurance coverage, lack of a primary care provider, or due to lack of healthcare utilisation (AHRQ, 2008). In this thesis, we use personal and workplace characteristics as the main variables that influence of access to medical care as stated before.

In addition, in this study, the questionnaire links access to healthcare to the basic coverage of CEBHI. The questionnaire utilised for this study sought to determine the obstacles to access. Both access and utilisation must be measured to insure the medical care visit achieved its objectives. Therefore, participants in this study were asked not only about being seen by a Doctor within 12 months, but also about the outcome of the appointment. For example, if a patient visited a highly qualified Physician but no diagnosis was available because of a lack of diagnostic equipment (e.g. X-ray, C.T. or M.R.I), the visit did not achieve its objectives. Subsequently, participants were asked if they saw the right Physician, if they had been referred to a specialist, and also if the right equipment was available if required. This approach linked access issues to both demand and supply because a poor quality of available healthcare could potentially lead to a low-demand for healthcare. This is one of the reasons that after reviewing many questionnaires, the MEPS access to healthcare was selected (see further details in Chapter 4, Section 4.5.1, and page 107).

In conclusion, this thesis utilizes three measures of access to medical care. These access measures are used in studies with similar study objectives and a targeted population with multiple ethnicities (Hargraves and Hadley, 2003, Shi et al., 2010, Zuckerman et al., 2004). These measures are access to usual medical care (such as primary care), inability to access medical services in the past 12 months (unmet medical need), and whether the participant had been seen by a Physician in the past year (utilisation of medical care). The main access to medical care measures used to achieve the study objectives are illustrated in Figure 2.8 overleaf.

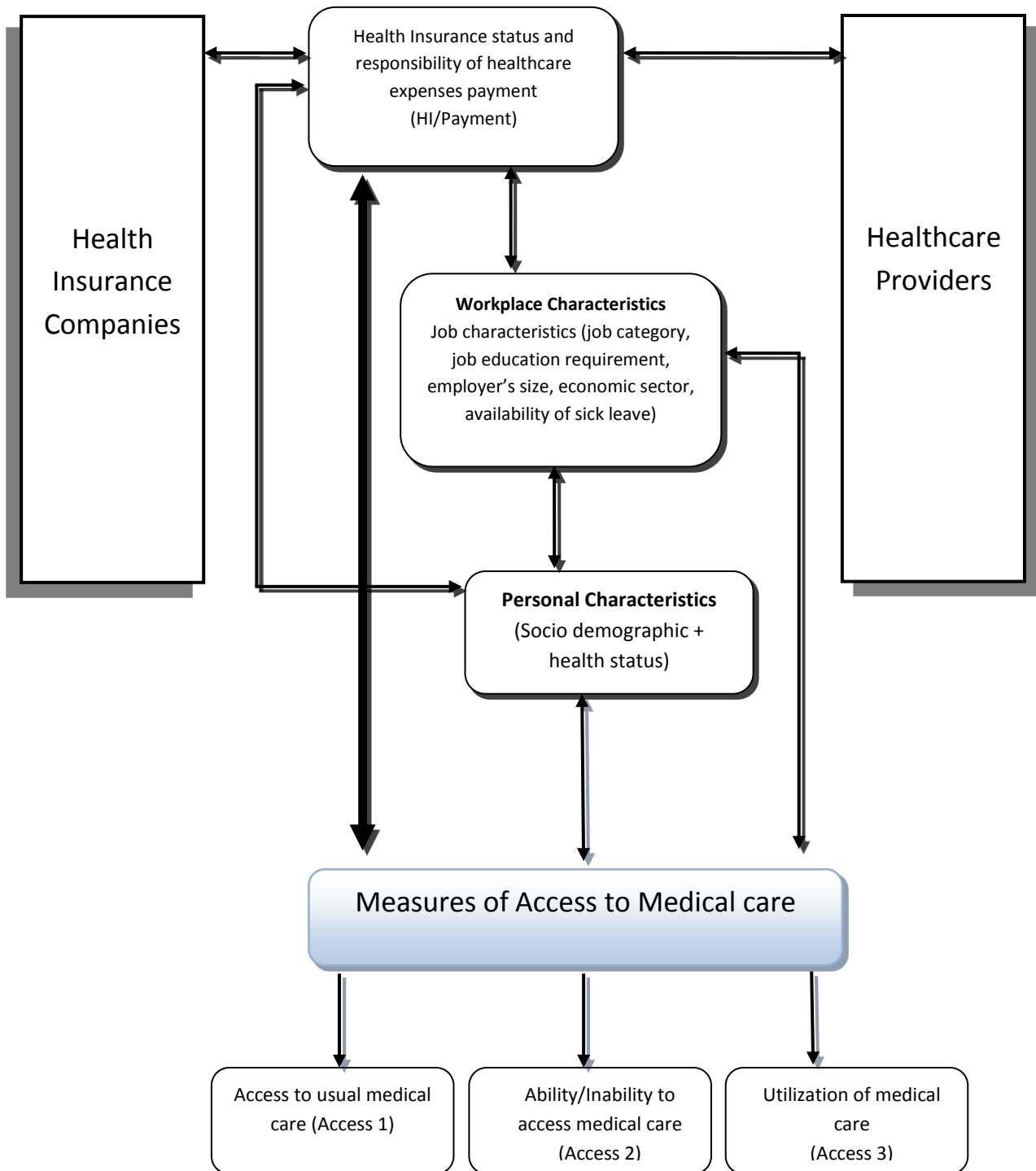
Figure 2.8: Measures of Access to Medical care



Based on the aforementioned discussion, the final form of the conceptual framework and measures of access to medical care are illustrated in Figure 2.9 (overleaf), where three measures of access to medical care have been used: 1) access to a healthcare setting, which includes access to primary healthcare; 2) ability/inability to access medical care when needed; and 3) utilisation of medical care.

Further details of these measures and their association with access, as well as their frequent use in the literature for measuring health insurance impact on access, or disparity in access to medical care for minorities or ethnic groups, will be discussed in section 2.10.

Figure 2.9: Final Form of the Conceptual Framework and Measures of Access to Medical Care



Source: Author's Design

2.10 The Association of Health Insurance with Access to Medical Care for Expatriates

The primary objective of health insurance is to provide access to care whilst protecting people financially (Kutzin 2001). This includes Employment Based Health Insurance (EBHI). However, due to the difference in health insurance spectrums, the impact of health insurance on access to healthcare must be studied with respect to the form of health insurance. When Bassett and Kane (2007) reviewed the literature about private health insurance, they concluded that there was vast coverage in the literature on community health insurance or SHI in low-income and middle-income countries, but limited empirical evidence about developing countries. Similarly, there are few articles that specify the implications of private EBHI on minority access to healthcare from developing countries.

Since the CEBHI is a private health insurance plan, the literature review focuses on the influence of private health insurance on access to medical care. The other forms of private health insurance such as community based health insurance or micro health insurance will not be heavily reviewed.

Evidence from developed countries such as the United States, provides strong evidence that private health insurance increases access to medical care (Medicine, 2001). The majority of related literature focuses on the disparities in access to health insurance and their association with ethnicity, race, age and income. Disparity in access to healthcare for ethnic minority Americans is still obvious, even after controlling factors such as income and insurance (Prevention, 2004, Lillie-Blanton et al., 2003, Greenberg et al., 2003). However, it is noted that some of the disparity could be explained by English fluency (Fiscella et al., 2002), by living area (Berdahl et al., 2007), or a foreign birth place (Goel et al., 2003). Another empirical study concluded that health insurance coverage minimized the difference in access to and use of healthcare amongst different ethnicities, mainly for those with similarly low incomes (Zuckerman et al., 2004).

As stated earlier, one of objectives of this thesis is to compare expatriate access to medical care before and after CEBHI implementation. Since few studies address this particular issue, studies that assessed the influence of health insurance on reducing disparity in access to healthcare amongst vulnerable populations and multiple ethnicities were reviewed.

2.10.1 Impact Health Insurance on Availability of Usual Medical Care Setting (Access 1)

There is evidence from literature that people with regular healthcare providers are less likely to report delays in getting medical care, and more likely to utilize their healthcare services (Lambrew et al., 1996). Some evidence suggests that the availability of a regular Physician is more important than insurance in regard to accessing medical care (Sox et al., 1998). Furthermore, people without health insurance or with disrupted coverage are less likely to have usual healthcare services such as primary healthcare, and more likely to have unmet healthcare needs (Carlson et al., 2006, Kasper et al., 2000, Newacheck et al., 1998, Callahan and Cooper, 2005, Lillie-Blanton and Hoffman, 2005, Waidmann and Rajan, 2000a). Therefore, access to usual medical care was one of the access measures used in this thesis.

The above-mentioned studies did not link their contributing factors to either employer or employee characteristics. Different studies argue that health insurance coverage alone may not be significant enough to increase access for minorities due to variations in the quality of healthcare providers, differences in culture, linguistic differences, discrimination, and attitudes about healthcare (Fiscella et al., 2002, Zuvekas and Weinick, 1999). Other studies note that factors such as job characteristics and personal characteristics are equally important to health insurance (Zuvekas and Tallaferro, 2003). Therefore, access to usual care has been adjusted for these factors in this study. In this thesis, workplace and personal characteristics were used to adjust for these variables.

In addition, access to usual care must be considered in light of the quality of care and type of healthcare providers (Lurie, 2002, Lillie-Blanton and Hoffman, 2005, Starfield, 2008). Access to high quality care is readily available in many developed countries such as the United States, but is not always available in developing countries as stated previously in section 2.9. Therefore, although this access measure is an important measure, it may not be enough to assess access measures alone.

In summary, there is strong evidence of the impact of health insurance on access to usual care for minorities, particularly in developed countries. However, no study has been found that uses 'usual access to medical care' as an access measure for a developing country.

2.10.2 Impact of Health Insurance on Reducing Unmet Medical Needs (Inability to Access Medical Services) (Access 2)

This access measure is particularly important for minority populations. A recent study notes that not using the 'inability to access medical care' as a measure of access, is one of the study limitations (Mahmoudi and Jensen, 2012). Many reports used this access measure as one of the main measures for vulnerable populations (AHRQ, 2007). In this thesis, this access measure used, is one of the main access measure (access 2) .

Hargraves & Hadley (2003) found that a lack of health insurance was not only a significant obstacle to accessing medical care, but also the most important factor. One of the interesting findings of the study was that insurance coverage had more influence on access to healthcare than the supply of medical resources (such as primary care Physicians, availability of hospital emergency rooms, charity care) for the minority community. The study found that insurance coverage was a condition for reducing disparity in access to medical care amongst different racial or ethnic groups. However, they also found unexplained factors associated with disparities in minorities' access. The authors believe that these could be due to a difference in patients' care-seeking behaviour, a lack of communication between patients and healthcare services, or discrimination (Hargraves and Hadley, 2003).

After controlling socio-economic factors and demographic characteristics, one study assessed racial/ethnic disparities in access to medical care and measured the role of health insurance and income on these differences (Shi et al., 2010). The study's findings were controversial. One of their findings was that minority groups were less likely to report difficulty in accessing medical care. Although the study admits the disparities depend on access measures, the authors did not identify or recommend the right measures. Also, the study did not consider the availability of usual healthcare services as one of the access measure, nor did they distinguish between the characteristics associated with the socio-economic factors and workplace characteristics, including the employers' characteristics.

No studies from developing countries were identified that measure inability to access medical care and health insurance (Access 2) even though this measure can explain some of the barriers that prevent access to medical care. There are many reasons that hinder the medical needs of expatriates being met, such as needing a Specialist referral or unavailability of necessary equipment. In addition, this access measure considers both demand and supply, because a poor quality of available of healthcare services could lead to a low-demand for medical care; insufficient supply of medical care could also lead to low-

access to medical care. An elaboration of this access measure will be discussed in Chapter 4, section 4.112)

2.10.3 Impact of Health Insurance on Utilisation of Medical Care (Access 3)

Various articles have discussed the impact of health insurance on healthcare utilisation in detail. However, the most remarkable study, which highlighted the positive relationship between access to healthcare and utilisation, came from the Rand Health Insurance Experiment (RHIE) in the United States. One of the main strengths of this study was its control of selection bias by randomly distributing the participants into different insurance plans with different co-insurance rates. Although this study was one of the few that were globally accepted, the RHIE study was conducted long ago (1970s). Recent studies have supported the findings (Freeman, Kadiyala et al. 2008), but these studies focused mainly on the influence of insurance on increasing consumption of medical care services rather than access to medical care, which is not within the scope of this thesis as illustrated previously in section 2.8.

Other evidence from developed countries includes the study by Schoen, Osborn et al. (2010) that generally concluded that health insurance had a positive impact on access to medical care in countries including Australia, Canada, France, New Zealand, the Netherlands and the United States. However, they did not link the impact to the type of insurance (public, private or a hybrid). Aside from long waiting hours, another concern in developed countries was the difficulty of being able to access medical care after working hours except via emergency departments (Schoen et al., 2010). Similar evidence was sourced in the study of outpatient services that was conducted in Ireland and Swaziland, in which private health insurance increased utilisation of healthcare services (Onwujekwe, 2001, Schellhorn, 2001). However, all of the above mentioned studies did not consider if the positive impact of insurance is true for minorities, and these studies did not consider the role of private health insurance to assist the impact truly because the role of private health insurance has to be understood in the context of its role as illustrated previously in section 2.5. However, there is evidence regarding the relation between insurance and increased utilisation of medical care for minority populations in the United States, where the role of private insurance is similar to that of CEBHI, as illustrated in section 2.12. There is evidence that health insurance increases utilisation of medical care and reduces the disparity in access to medical care for minorities with different ethnic groups (Kasper et al., 2000, Weinick et al., 2000, Mahmoudi and Jensen, 2012).

Chapter 2: Literature Review and Conceptual Framework

There has been some controversy about this issue with moderate evidence for the impact of private health insurance on access and healthcare utilisation in developing countries, including Vietnam, China and Colombia (Ekman et al., 2008, Lei and Lin, 2009, Alvarez et al., 2011). However, one of the studies, which supported private health insurance increasing utilisation of healthcare, came from Indonesia. It was found that health insurance increased the demand for healthcare services (Hidayat, 2008) although the study objective was to study the conditional and unconditional demands of utilisation of medical care with insurance. In addition, this study was similar to other studies that did not identify if the demand on access to medical care is the same for minorities or different ethnic groups, nor did it determine the characteristics of workers enrolled in private health insurance, such as their insurance status, income or education.

Recently, Abu Dhabi, one of the United Arab Emirates States, implemented compulsory health insurance plans on both Nationals and expatriates, with different health insurance benefits between the two groups. Differences in the benefits packages have been classified as three insurance schemes: one for nationals (Thiqa), one for unskilled labourers and lower paid employees (Basic), and one for higher skilled expatriates (Enhanced). The impact of the new insurance schemes on access to medical care lacks evidence, but the new schemes have covered over 95% of Abu Dhabi's population (General Secretariat of the Executive Council et al., 2008), despite disparity in the utilisation of medical care amongst policyholders. A study found there to be a difference in the utilisation of medical care amongst these schemes (Koornneef et al., 2012). The nationals who have the most generous scheme (Thiqa), utilise the medical services more than those in the least generous scheme (Basic). The study used the number of claims per member per year, as an indicator for utilisation of medical care. However, the difference in utilisation (3 claims per year for Basic members versus 14 claims per year for Thiqa members) could be explained by the difference between Nationals and expatriates in their socio-economic factors such as age. For example, the average age for nationals and expatriates is different, since the Thiqa scheme covers all nationals including those over 65 years, whereas the expatriates are a younger population (Koornneef et al., 2012). In addition, there is a difference between nationals and expatriates in the co-payment, since the Basic scheme requires paying higher co-payments than Thiqa products (Koornneef et al., 2012).

However, some of the strongest evidence from developing countries about the influence of health insurance on healthcare utilisation does not come from private health insurance but from either SHI (Ekman et al., 2008, Michielsen et al., 2011), or government-subsidized

health (Yip and Berman, 2001, Hugh R. Waters, 1999) or national health insurance programs (Liao, 2008). In addition, even the evidence from private health insurance was for other forms, such as community based health insurance (Jutting, 2004) or micro health insurance (Sekabaraga et al., 2011). A new study from Thailand found that SHI increased healthcare utilisation in the context of ethnic minority immigrants, as evidenced by an increase in health insurance coverage and a corresponding increase in use of medical care (Hu, 2010). However, the same study also showed that ethnic minority immigrants had the lowest health insurance coverage and the least healthcare use compared to other groups. In other words, there is inequality in healthcare use between citizens and ethnic minority immigrants (Hu, 2010). The study also possibly overestimates the number of ethnic minority immigrants with health insurance coverage, as well as their use of medical care (Hu, 2010).

As illustrated, this access measure is one of the most common access measures to have been highlighted in the literature, from both developing and developed countries. Therefore, this access measure is used as one of the main access measures in this thesis (Accesss3).

In summary, most of the evidence of the impact of health insurance on access to medical care comes from developed countries, where the role of private health insurance is to provide supplementary or complementary medical care services. There are a few studies from developing countries, but these usually either have limitation in their scope, such as the one from the UAE, or in the context of social health insurance. Furthermore, no study has been identified that takes into consideration the personal and workplace characteristics of minority workers on the impact of health insurance, and only a few studies consider the three measures of access to medical care.

Below is an elaboration on the reasons behind introducing CEBHI in Saudi Arabia. This is very important step before comparing the CEBHI with Employment Sponsored Insurance (ESI) implemented in the United States, and the steps taken by CEBHI to mitigate the disadvantages of ESI.

2.11 Why CEBHI was Introduced

The CEBHI scheme in Saudi Arabia, was implemented with the aim of benefitting all expatriate workers in the private sector and regulating their healthcare, whilst providing financial protection against healthcare expenses, controlling those benefitting from the government healthcare budget, and reducing government healthcare provider expense (Cabinet of Ministers, 1999a, Al-Rabeeah, 2000, Saati, 2000). This new health insurance

policy was expected to increase expatriate access to private healthcare services and reduce demand on governmental healthcare services, thereby allowing improved government spending (Al-Rabeeah, 2000, Saati, 2000, Cabinet of Ministers, 1999b).

The demand on medical care increased heavily between 1971 and 1988 for many different reasons:

1. The number of expatriate workers increased more than 500% (from 780,000 to 4.04 million) between 1974 (the first year non-Saudi citizens including expatriates were counted) and 1988 (Ministry of Economy and Planning, 2008). In addition, the population increased more than 200% from 6 million to 14.55 million (Ministry of Economy and Planning, 2008). It was predicted that in 1999, the gross total population would increase from 15.7 million to 29.7 million by 2020, which is an increase of 89.2% during this period (Ministry of Planning, 2000).
2. People changed their lifestyle. As a result, disease patterns changed from the curable diseases to chronic diseases such as diabetes, hypertension, high cholesterol, etc. (WHO, 2006a).
3. There was an increase in the population's awareness of the importance of health services due to an increase in education. In the past, people did not use health services because they did not understand the importance of healthcare (Ministry of Economy and Planning, 2003). For example, many women did not attend a hospital to deliver a baby, but instead, delivered their baby at home.
4. There was an increase in the rate of injuries due to car accidents. It has been estimated that there are 22 deaths daily on Saudi Arabian roads (MOH, 2005), with road accidents being the main cause of casualties in male adults between 15-30 years of age (MOH, 2005).
5. There was an increase in life expectancy for the population to 71 years for males and 73.6 for females, whereas in the previous decade, the life expectancy was approximately 53 years (Ministry of Economy and Planning, 2005).
6. There was an increase in demand and utilisation of MOH hospitals by expatriates:
 - 28% of inpatients in MOH hospitals are non-Saudi (including expatriates), whereas only 56% of inpatients in the private sector are Saudi. The majority of car accident patients were treated by MOH hospitals (Al-Rabeeah, 2000). The frequency and incidence of traffic accidents amongst the expatriate population is higher than for nationals (WHO, 2006a).
 - 87% of renal failure patients are treated in MOH hospitals (Al-Rabeeah, 2000).

- MOH bears the responsibilities of treating free of charge the two Holy Mosques and Hajj visitors. The above-mentioned figures indicate that some of the MOH expenditure is used by non-Saudis during pilgrimage.

In short, the government looked into CEBHI as a means of controlling its medical care expenditure, by reducing the demand of government medical care for the increasing expatriate population, whilst maintaining expatriate access to medical care through private sector.

2.12 Exceptions, Similarities and Differences between ESI in the United States and CEBHI in Saudi Arabia

As this study focuses on the CEBHI of Saudi Arabia and its impact on access to healthcare amongst expatriate workers in the country's private sector, it is important to provide comparisons between the CEBHI scheme features with ESI in the United States, as this is the most relevant employment-based health insurance scheme. Evidence from the United States with regards to expanding the role of employment-sponsored insurance (ESI) is not encouraging. The main characteristics of employees and their job that impacts on the availability of health insurance are elaborated in further detail below.

2.12.1 Employee Characteristics

VHI coverage has been influenced by the characteristics of the employees, their duties, employers' characteristics, and the increase in healthcare costs. The main factors that influence a worker's decision to take up VHI are income, worker status, age, gender, race and education (see Table 2.2). Many studies show that most of the decline in VHI uptake occurred for low-income workers, ineligible workers (because they work part-time), and unionized workers (Fronstin and Snider, 1996, Acs, 1995). Others propose that the increase in healthcare costs in comparison to income is the main reason for declining VHI uptake (Kenneth and Curtis, 1999, Kronick, 1999).

The uninsured population spans all age groups but younger adults (19-25) represent 30% of the uninsured, presumably because they usually begin their careers in positions offering relatively low incomes (see Table 2.2). The risk from low income, is not only that the employer is more likely to offer a job without health insurance coverage, but also because the premium is unlikely to be shared (The Kaiser Family Foundation, 2008).

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While there are widely published works that highlight the effects of employee's personal characteristics on access to health insurance, the majority of these articles focus on the disparities in access to health insurance and its association with ethnicity, race, age and employment status (Medicine 2001). One study conducted by Buchmueller reviewed the differences between women and men regarding their uptake of VHI. The study determined that the differences are primarily because women tend to obtain health insurance coverage through their husbands (Buchmueller, 1996). Another study showed a negative correlation between an employee's marital status (married or single) and whether he/she was offered health insurance. The authors concluded that a spouse's insurance had a passive influence on whether a worker was offered insurance by his/her own employer, as well as on the probability of being a full-time worker with health insurance (Royalty and Abraham, 2006).

Many studies concluded that the higher the job level, the higher the possibility that the employee will be insured (Kao, Part, et al; Medicine 2001; Ryu, Young et al 2001; Kim and Shin 2006). However, these studies have not considered the job requirements or the education required for the job. Education reflects the personal characteristics of the employee, whereas the job-required education reflects the importance of the job to the employer. There is no study that has investigated whether personal characteristics of the employee or the job characteristics are more important when issuing health insurance to expatriate workers. Therefore, this study investigates job educational requirements as one of the variables to assess the complexity of the job, its importance to the employers and its influence on an expatriate employee's access to health insurance.

David Cutler and Brigitte Madrian (1998) observed that health insurance influenced the labour market by lowering wages and changing the composition of employment (Cutler and Madrian, 1998). In another study, Cutler demonstrated that workers, rather the employers, refused to take up health insurance because of the rising premiums (Cutler, 2003).

Table 2.2: The Main Factors that Influence Access to Health Insurance Coverage in the United States, Based on Employee Characteristics

Employee Characteristics	Comments
Low income or wage (Acs, 1995, Cutler, 2003, MDCH, 2001, Shen and Long, 2006, Blumberg et al., 2001)	Low-income workers are less likely to be insured. Low-wage workers are more sensitive than higher-wage workers with regards to the responsiveness of the size of the contribution.
Worker status - part time - (Fronstin and Snider, 1996, Hansen, 2001)	Part-time, temporary workers are less likely to be insured.
Age (Fronstin, 2010, The Kaiser Family Foundation et al., 2010, Stanton and Rutherford., 2004)	Young adults (19-24) are less likely to be insured.
Gender (Buchmueller, 1995, Fronstin, 2010)	Women are more likely to be insured than men.
Race (Fronstin, 2010, Stanton and Rutherford., 2004)	Hispanic males are less likely to be insured than white males.
Education & his/her position in the job (skills) (Hansen, 2001, Glied and Jack, 2003, Fronstin, 2010).	Workers in managerial and professional occupations are more likely to be insured.
Union status (Olson, 2002, Fronstin and Snider, 1996, The Kaiser Family Foundation et al., 2010)	Workers with no union are less likely to be insured
Health status (Kapur et al., 2008, Hoffman and Wang, 2003)	Uninsured people are less likely to be in good health than insured people.

Source: Author's Design

2.12.2 Employer Characteristics

The main factors that influence an employer's decision to provide health insurance are his size, the industry (manufacture, services, etc.), and the type of business (government, private, not-for-profit) (see Table 2.3). The size of the firm is the dominant factor. Small firms are not only less likely to offer health insurance in comparison to large firms, but also less likely to offer multi-health plans and greater health insurance coverage (Cantor, 1995, Morrissey et al., 1994, Gabel, 1999, Levy, 1997). Small companies tend to hire part-time workers in order to avoid providing health insurance coverage (Hansen, 2001). One study found that employers used employee premium contributions to persuade employees with a low demand for health insurance to avoid taking health insurance coverage (Levy, 1997). Due to an increase in health insurance premiums, some companies had either stopped

providing health insurance to their employees or had changed the system so that their employees bore all or most of the contribution (Hansen, 2001).

Monheit and Vistnes (1994) determined that a firm's size was not an indicator for the health status of its employees, but that uninsured employees in both large and small firms are unhealthier than insured employees. The value of this finding was argued by others since the outcome could represent that health insurance was only offered to employees who were in good health (Kapur et al., 2008).

Bundorf (2000) studied the influence of employers on the health insurance that workers received by using employer economic incentives when choosing health benefits for employees with heterogeneous preference for coverage. He found that in general, employers respond to the choice of their employees, but some workers do not receive the desired health insurance due to both the level and variation of their characteristics (Bundorf, 2000). Hansen (2001) studied the factors that influenced the small business employers' decision to offer health insurance to their workers; employers use health insurance coverage to attract highly skilled employees but employers are less likely to provide health insurance coverage if the insurance coverage is very expensive.

Many studies identified the main challenges facing firms in obtaining and maintaining health insurance for their employees (Brown et al., 1990, Fronstin, 2000, Monheit and Vistnes, 1994). Due to the high administrative cost of health insurance for small firms, the low demand for health insurance among workers in these firms, and the unwillingness of insurers to take on small firms' risks, only 40% of firms with fewer than 10 employees offer health insurance, compared with 97% of firms with 50 or more employees (Fronstin, 2000, Kapur, 2004, Kapur et al., 2008). A study by Morrissey and others, concluded that the main reason employers did not offer health insurance to employees, was the high premium variability (Morrissey et al., 1994). Small firms may control the expensive premium variability by keeping workers who were expected to utilize less healthcare services. In other words, the enforced link between employment and health insurance may result in the prevention of individuals with expected high healthcare costs from being employed by small firms (Kapur, 2004, Kapur et al., 2008). The rising cost of health insurance led to a decline in the number of companies providing ESI (Chernew et al., 2005). The decline of ESI in the United States not only touched low-income workers, but also affected some middle-income workers (Shen and Long, 2006).

Table 2.3: Job Characteristics in the Context of Employment-Sponsored Insurance (ESI) in the United States

Job Characteristics	Comments
Size (small employers) (Cantor, 1995, Hansen, 2001, Morrissey et al., 1994, Levy, 1997, Gabel, 1999, Abraham et al., 2009, Fronstin, 2010, Vistnes and Selden, 2011)	Workers in small companies are less likely to be insured
Type of industry (manufacturing, trading, agriculture, etc.) (Fronstin, 2010, Glied et al., 2003) (Hoffman 2004)	Manufacturing jobs are more likely to include job-based coverage than services and other sectors. Workers employed in agriculture were more likely to be uninsured.
Type of business (government, profit, private) (Fronstin, 2010)	Government employees are more likely to be insured than private sector employees.

Source: Author's Design

2.12.3 How CEBHI Mitigated the Disadvantages of ESI in the United States

CEBHI has been implemented in ways that mitigate some of the downsides of the ESI system in the United States, as described in Table 2.4.

First of all, unlike ESI in the United States where the scheme is voluntary, the CEBHI scheme is not only compulsory, but a financial fine must be paid by employers who fail to follow the policy (see Table 2.4). No expatriate can obtain or renew his Iqama (residency permit) without an official document confirming that he has a health insurance policy that is equivalent to the residence permit period. In addition, it is not permitted for a health insurance company to reject any application for cooperative health insurance (Cabinet of Ministers, 1999a). Health insurance in CEBHI is an obligation under the law, not an employment fringe benefit as employers in the United States view it. Based on this, one potential advantage of CEBHI is that it could increase access to healthcare when compared with VHI. The importance of the characteristics of the employer's mandate cannot be underestimated, especially when they lead to a smaller uninsured population. For example, in the United States, since the Hawaii mandate (Hawaii Prepaid Healthcare Act) did not include coverage for dependents and excluded many employees, the mandate reduced the number of uninsured at most by 25 to 30%, whereas a popular alternative plan such as

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Choice Health Plan where the employees' dependents were included, the number of uninsured reduced by up to 75% (Dick, 1994).

Voluntary ESI can be a very serious problem. Employees who change jobs frequently and part-time employees may move in and out of eligibility for coverage. People in poor health may find it impossible to get a job that offers the coverage they depend upon (CED, 2006). Employers control both the eligibility criteria (employment status and hours worked) and who to offer health insurance to, because it is voluntary (CED, 2006) (see Table 2.4). An argument in the literature exists about whether employees demand health insurance as an essential criterion for selecting a job, or whether employees look for health insurance only as an attribute of a good job. A number of recent studies suggested that families with high-expected family costs prefer jobs that provide health insurance as one of the main benefits. In contrast, workers with low preference for health insurance may naturally select jobs that lack health insurance (Royalty and Abraham, 2006). Buchmueller indicated that employer screening was dominated by high-risk workers who prefer jobs with employers who offer insurance. Employees who described their health as fair or poor, said they had difficulty with physical tasks or had a work-related disability, and these were less likely to be offered health insurance than healthy workers (Buchmueller et al., 2005).

Secondly, the financial burden under ESI is carried by workers and their dependents. To minimize burden of high premiums or a high co-payment or high co-insurance, employers control the benefit packages, coverage and eligibility, premiums payment, co-payment scheme and health plan choices of their employees. In addition, health insurance coverage, benefits, premiums and co-payments are based on an agreement between the employer and the health insurance company (Fronstin, 2000). These factors could be used to increase the premium or the co-payment, or reduce the healthcare benefits in the policy for the workers. CEBHI is mandatory and health insurance companies determine the premium based on risk pooling, not the need, or income.

Table 2.4: Main Differences between the Employer-Sponsored Insurance in the United States and CEBHI in Saudi Arabia (excluding the role of the employers)

Main characteristics of Employment Health Insurance Scheme	Employment Sponsored Health Insurance (ESI)	CEBHI
Scheme Nature	Voluntary - Employers view health insurance as a part of the employment fringe benefits, not an obligation. (Morrisey et al., 1994, The Kaiser Family Foundation et al., 2010, Stanton and Rutherford., 2004).	Compulsory Employers view health insurance as an obligation (Cabinet of Ministers, 1999b)
Population Coverage	All workers in the private and government sector Workers in the public sector are more likely to be insured (Fronstin, 2010).	All Saudi and expatriate workers in the private sector and their dependents⁹ (Cabinet of Ministers, 1999b, CCHI, 2009c).
Government Intervention	Weak There is evidence that some of the government regulations increase premiums and uninsured (Pauly and Herring, 2007, Baicker and Dow, 2009). Some legislation in protect customers' rights such as under writing and regulations provision services.	Strong Health insurance council not only to regulate the implementation, but also to accredit health insurance companies and healthcare providers. Regulated employers' contribution, benefits package, and other regulations.
Incentive to Increase Participation	Moderate Employer insurance payment exempt from payroll and income taxes (favourable tax treatment for both employers and employees) (Sheils and Haught, 2004, Stanton and Rutherford., 2004). Less expensive than individual purchased coverage for the same set of benefits. (Stanton and Rutherford., 2004)	High Law enforcement and penalties for those who do not follow the policy.
Job Mobility / The Interval between Applied to the Job and to be Insured	Reduced job mobility ("Job Lock") People in poor health may find it impossible to get a job that offers the percentage they depend upon (Fronstin, 2007, CED, 2006)	No Job Mobility Workers cannot freely change his job without permission of his sponsor.
Cost control	¹⁰ Moderate control The increase of health benefits cost is more than the workers are earning.	No clear mechanism to control the cost of healthcare.

⁹ But dependents are not yet fully covered

¹⁰The increase of health benefits cost is more than the workers earning. FRONSTIN, P. (2007) The Future of Employment-Based Health Benefits: Have Employers Reached a Tipping Point? IN BRIEF, I. (Ed.) *Issue Brief* Washington, DC Employee Benefit Research Institute.

Main characteristics of Employment Health Insurance Scheme	Employment Sponsored Health Insurance (ESI)	CEBHI
	(The Kaiser Family Foundation et al., 2010, Fronstin, 2007)	
Risk adjustment (adverse selection) ¹¹	Controlled risk pool. Cost is based on risk pooling, not based on income (Ketsche and Custer, 2000).	Controlled risk pool, but insurers can not reject any applicant (CCHI, 2009c).

Source: Author's Design

Table 2.5 illustrates the roles of the employer in ESI and CEBHI schemes. For example, under CEBHI, employers must pay the entire premium for their workers (CCHI, 2009b). The CEBHI established that if employers did not subscribe or failed to pay premiums for their workers, the employer would be required to pay the premiums and a limited fine, and could lose their right to accrue expatriate workers (Cabinet of Ministers, 1999b). Therefore, CEBHI protects the workers from the increasing cost of premiums over time. This is the opposite of the current movement in the private sector in the United States, where employers are shifting the cost to their employees (Swartz, 2008). Expatriate workers' co-payments towards the invoice have been determined by the new policy as not to exceed 20% of the invoice or SR100 (USD26.67) (CCHI, 2009b). Workers pay a fixed amount of money to avoid any concern that the co-payment or co-insurance could increase over time. Unlike voluntary employment-based health insurance such as that in the United States, where employers can control the benefits package and the CCHI issues the unified benefits package. All necessary examinations, treatment, medication, diagnoses and preventive procedures have been unified in the one insurance policy (see Chapter 3, section 3.7.7, and page 87 for further details).

¹¹Risk adjustment refer to "a setting per persons (or per family) premium paid to health plans based on a formula that uses socio-demographic , clinical, or health status information" GLAZER, J. & MCGUIRE, T. G. (2001) Private employers don't need formal risk adjustment. *Inquiry*, 38, 260-269.

Table 2.5: Roles of the Employers in ESI and CEBHI Schemes

	Employment Sponsored Health Insurance (ESI)	CEBHI
Benefits Package	Controlled by the employer (The Kaiser Family Foundation et al., 2010, Fronstin, 2007); ¹²	Predetermined by minimum unified benefits (Cabinet of Ministers, 1999b, CCHI, 2009c)
Eligibility for Coverage	Strong Employers control employment status and hours worked. There is evidence that employers may keep insurance coverage but reduce eligibility for coverage. (Vistnes and Selden, 2011)	Weak Mandatory and obligated by the law.
Premium	Contribution varies between employer and employee but controlled by employers. There is evidence that employers (mainly small and low-wage) are less likely to offer health insurance {The Kaiser Family Foundation, 2010 #5194; Ketsche, 2000 #5199; Cooper, 2003 #5202; Fronstin, 2007 #4456}	Employer bears the premium as per the law (CCHI, 2009c, Cabinet of Ministers, 1999b).
Coinsurance & Decidable (Co-payment)	Controlled by employers in coordination with insurer. There is evidence that employers increase deductible amounts in response to increase in premium inflation. (The Kaiser Family Foundation et al., 2010, Fronstin, 2007, Vistnes and Selden, 2011)	Pre-determined co-insurance 20% but not exceed USD26.6 (deducible/Co-payment) (CCHI, 2009c)
Availability of Health Plan Choice	Controlled by employer. Large firms more likely to offer plan choice. (The Kaiser Family Foundation et al., 2010)	Unified plan form (CCHI, 2009c)

Source: Author's Design

Thirdly, in CEBHI, government intervention (stewardship) is very strong and essential to its success (see Table 2.4). The CCHI is the governmental body responsible for regulating and monitoring the universality of health insurance coverage (CCHI, 2009b). It had determined the financial obligation to be paid by both employers and employees, as discussed. The assumption was that if the financial barriers and full contribution were sponsored by employers, access to medical care for all expatriate workers would be achieved.

¹² Sometimes the employees reject health insurance even if offered by the employer

Fourthly, due to the natural experiment of this study, it is possible to assess if enforcing employers to provide health insurance to their workers, increases their access to health insurance as well as their access to healthcare. Other studies were not able to measure employers' attitude towards this change from voluntary to mandatory insurance coverage changes.

Although there are similarities between ESI and CEBHI, the ESI is being applied to all workers in the United States, whilst in Saudi Arabia, the CEBHI is applicable primarily to expatriate workers.

In summary, because of its mandatory nature and the control and regulation of financial barriers by the government, CEBHI anticipates guaranteed access to medical care for expatriate workers in the private sector.

In this chapter, the literature review has been highlighted as well as the study conceptual framework. Moreover, the main differences between the CEBHI and ESI and how CEBHI mitigated some of the disadvantages of ESI have also been addressed. The next chapter extends the review, but with more focus on the financial aspect of CEBHI, and also links healthcare finance in Saudi Arabia, GCC countries and elsewhere, which is the study's number one objective.

Chapter 3: Review of Healthcare Financing in Saudi Arabia in Comparison with Other Countries

3 Chapter 3: Review of Healthcare Financing in Saudi Arabia in Comparison with Other Countries

3.1 Objectives of this Chapter

The overall objective of this chapter is to review health financing in Saudi Arabia in comparison with other countries (objective 1). This review includes some financial implications of the CEBHI system. This objective is very important because barriers to accessing medical care occur on both the supply and demand sides, particularly in developing countries (O'Donnell, 2007). Therefore, access to medical care cannot be isolated from the supply of services, nor can it be isolated from the financial barriers to access to medical care, if any. For example, does CEBHI reduce the OOP payments and are any additional expenses preventing access to medical care even after CEBHI?

This chapter presents an analysis of the characteristics of the Gulf Cooperative Council (GCC) health financing system, and draws similarities and differences between GCC countries and other high and low-income countries in order to provide some recommendations for the healthcare policy makers in relation to some financial consequences of CEBHI on access to medical care. The GCC countries have common characteristics –as illustrated in this chapter- which will impact on the financing of their healthcare services. If the CEBHI is a good model and proves to be an effective scheme that assists expatriates to increase access to medical care as well as increasing the partnership with the private sector, this model could be adapted by other GCC countries.

3.2 Structure of this Chapter

This chapter commences with an overview of the different healthcare financing mechanisms used to finance employment-based health insurance. It includes comparisons of how each mechanism funds employment-based health insurance and shows how these mechanisms work for the CEBHI.

A brief discussion then follows regarding how Saudi Arabia finances its healthcare system in comparison to GCC and other high and low-income countries. In addition, the main challenges that might impact on access to medical care from both the supply and demand sides will be highlighted. These factors must be identified before considering the impact of CEBHI on access to medical care.

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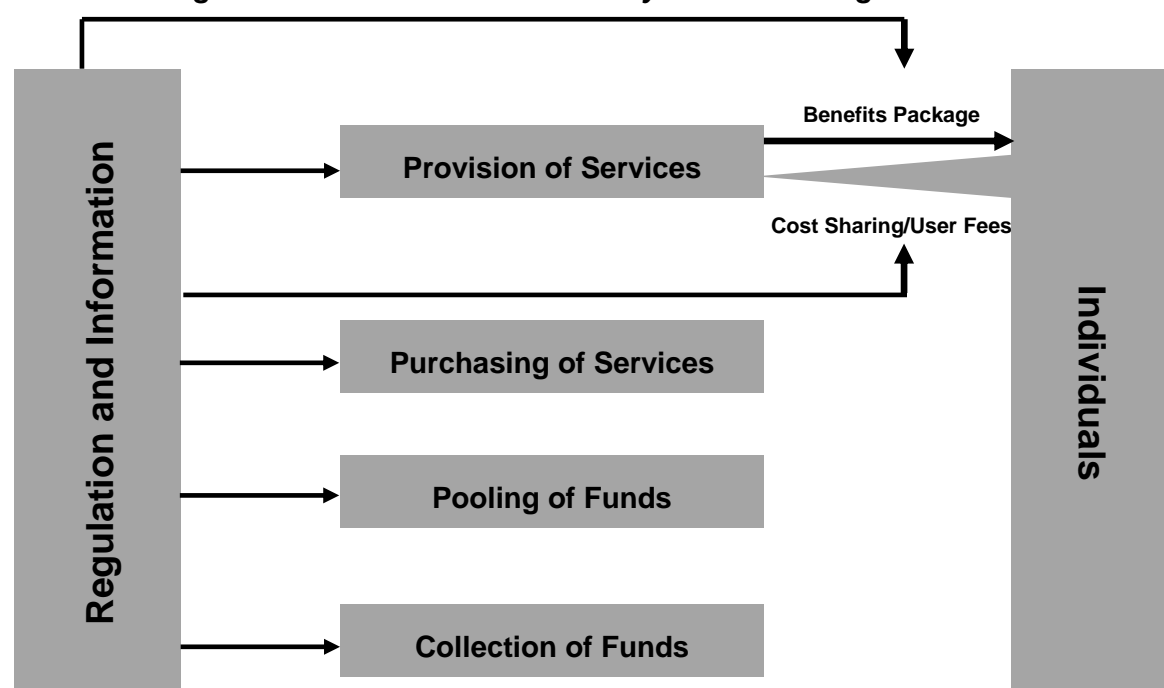
In the latter part of the chapter, the main characteristics of the GCC countries will be reviewed and how these impact on the financing of their healthcare services; this chapter will conclude by addressing the relevance of this study's results in relation to other GCC countries.

3.3 Methods

3.3.1 A Framework for the Analysis of Medical Care Financing

A descriptive framework (see Figure 3.1) developed by Joseph Kutzin (Kutzin, 2001) for country-level analysis of healthcare financing arrangements, which can assist in determining policy options (Kutzin, 2001), was adapted to conceptualize different components of GCC health financing resources, including resource allocation mechanisms¹³, pooling of healthcare revenues¹⁴, purchasing¹⁵, provision of services¹⁶, OOP payments and benefit packages¹⁷.

Figure 3.1: Framework of Health System Financing Functions



Source:(Kutzin, 2001)

¹³ “sources of pooled funds and contribution methods”.

¹⁴ means “the accumulation of prepaid healthcare revenues on behalf of a population”.

¹⁵ means “the transfer of pooled resources to service providers on behalf of the population for which the funds were pooled”.

¹⁶ Provision of services provision refers to the “market structure of service”.

¹⁷ Benefits package “is not simply as a list of services to which the population (or beneficiaries of an insurance scheme) is entitled, but as those services, and means of accessing services, for which the purchaser will pay from pooled funds”.

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3.3.2 Healthcare Financing Data

It is particularly important to maintain consistency in the methods used to measure national health accounts (The World Bank et al., 2003), for the comparison and analysis of national health expenditures for each GCC country, as well as amongst countries from a range of income groups (high-income, upper-middle income, lower-middle income, low-income). Therefore, data was only used from one source to ensure that any comparisons are based on the same estimation and data collection methods. Hence, this thesis uses existing data on health financing from the WHO health expenditure database. However, a comprehensive recent data from WHO was not available for all comparison countries. For example, for some of countries, data was available for 2011, but if 2011 data was used, there would be a large gap amongst countries in terms of data representation (i.e. the data would be incomplete and data for high and low income countries was only available in 2005). For that reason a year was chosen for which we could ensure comparisons could be facilitated. In addition, as explained earlier, data was specifically selected from a single source in order to ensure that comparisons were based on the same estimation and data collection methods; hence the thesis uses existing data on health financing from the WHO health expenditure database. Furthermore, thesis data collection commenced in 2009, and it would be better to use the data that reflected the actual year of study (2009).

Microsoft Office Excel 2003 was used to tabulate the data of each country or income group and present the figures as graphs. The organisation of data is by health finance function (WHO, 2010a). Descriptive statistics were used to describe the health expenditure data for the GCC countries.

3.3.3 Literature Review

Using electronic and hand searches, a review of the limited available literature on GCC health care financing methods, including the CEBHI, was conducted. This comprised all articles, reports and official documents that addressed the financing of health care in GCC countries from 1992 to the end of 2012. The review drew on a range of different sources, including government documents, books, newspapers, databases (Scopus, Science Direct, ISI Web Knowledge, JSOTOR, and Pub Med), specialised websites (International Labour Organization, World Health Organization, World Bank, Google Scholar), and conference papers on Saudi Health Insurance. The keywords used in the literature search were: GCC health care financing, Saudi health financing, Saudi health insurance, health financing in high-income countries, financing of health care in low-income countries, the financing of

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health care in GCC countries, the financing of health care in Arab countries, the financing of health care in the Middle East, strategic planning in Kuwait, Qatar, UAE, Oman, Bahrain and Saudi Arabia. Moreover, in combination with the keywords, a range of generic words were included in the searches (e.g. expatriates, social health insurance, and minorities etc.). Moreover, given that much of the required literature would be in Arabic, a parallel literature search in Arabic was undertaken within Arabic search engines.

Finally, key words relating to the Saudi health care system were used, including health care systems in Saudi Arabia, health care in Saudi Arabia, Saudi health insurance, access to health care in Saudi Arabia and health care utilisation in Saudi Arabia.

3.4 Overview of Different Medical Care Financing Mechanisms

EBHI has been a major driving force in financing many healthcare systems and could be financed through the following: general revenue 'taxation', social health insurance, voluntary (or private) health insurance, OOP payments, and international donations.

3.4.1 General Taxes

EBHI can be funded from government revenue such as general taxes through direct or indirect tax. Whilst direct taxes are based on personal income tax and corporate profit taxes, indirect taxes are based on consumption only (ILO, 2008). Tax can be either very progressive (the levy is linked to income so those with a higher income pay more than those with a low income, for example in Thailand) or less progressive or even regressive (Mills, 2007). Taxes are mandatory for all populations (Langenbrunner, 2003). It has been noticed that dedicated tax that is visible, is an effective way to mobilize resources for the health sector in high-income countries in Europe and Central Asia, and in countries with high levels of formal employment, such as Croatia, the Czech Republic, Estonia, Hungary, Slovakia and Slovenia (Langenbrunner, 2003). Hong Kong finances more than half of its health spending through general tax and non-tax revenues (Wagstaff, 2005).

3.4.2 Social Health Insurance (SHI)

SHI generates funds from contributions by employers and their employees (Wagstaff, 2005). Therefore, SHI is likely to be less progressive than tax financing because of the effects of the contribution ceiling (Wagstaff, 2005). SHI is not simply an insurance arrangement but rather a 'way of life' (Saltman et al., 2004). In this view, SHI is a key part of a broader structure of social security and income support that sits at the heart of civil society (Saltman et al., 2004).

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It is unlikely to find two identical SHI systems and just as unlikely to find two identical tax-financed systems (Wagstaff, 2009). Some insurance models call themselves SHI systems, but they rely on up to 50% of public taxes and/or OOP expenses for their total funding. Also, they announce the central solidarity in their operations, yet not all citizens are covered by these SHI institutions (Saltman et al., 2004). SHI systems deal with EBHI differently regarding the employer/employee contribution, unlike CEBHI, under which employers must pay the entire premium. In some SHI systems such as in Swaziland and Israel, the premium is provided entirely by the employee (Saltman et al., 2004). In other countries, the contributions between the employer and the employee are almost equal, such as in Austria, Belgium, Luxembourg, and Germany, whereas in France, the employer contributes heavily (94%) (Saltman et al., 2004). Other factors to consider when reviewing SHI schemes include the ceiling on contributory income, the general contribution rate (uniform or varying), the percentage of wage, other personal contributions to funds (excluding co-payment to providers), and the scope of coverage. For example, Thailand's scheme covers only the workers and not their families (Mills, 2007).

3.4.3 Private Health Insurance (PHI)

PHI is often used as another term for Voluntary Health Insurance (VHI), which is usually voluntary for-profit commercial in contrast to mandatory (Sekhri and Savedoff, 2005). Although it is private, governments usually intervene to protect public health objectives of equity, affordability and access to health services (Sekhri et al., 2005).

Community-based health insurance is another form of private health insurance. Community-based health insurance shares some of VHI's characteristics. They share a dependence on voluntary membership, they both rely on trust (members will benefit from insurance if they need it), and they also share some negative characteristics such as adverse selection¹⁸, cream skimming (Bethesda, 2000)¹⁹, acting as a moral hazard²⁰, and free ride phenomena (Dictionary.com, 2012)²¹.

¹⁸ Adverse section has been defined in section 2.8, Chpater2.

¹⁹ "A term which, in hospital usage, usually means to select patients who will be financially profitable; for example, because they have an illness for which the prospective payment system (PPS) favours the hospital, or because they have insurance and are not charity patients".

²⁰ Moral hazard has been defined in section 2.8, Chapter2

²¹ Something acquired without the ordinary effort or cost.

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CEBHI has unified health insurance policies (more details on section 3.7.7), but the cost of health insurance policies may not be the same. The cost of a health insurance policy is based on the agreement between the employer and insurer; therefore, the premium and the cost of health insurance is likely to be very high in small firms because CEBHI is similar to private health insurance where premiums are linked to the health status of the member.

Micro health insurance is also another form of private health insurance, but for profit. It targets poor people (the poorest people not covered). Usually the benefits package and the premiums are limited. Evidence from India indicates that with its limited benefits coverage, micro health insurance has a limited impact on reducing OOP payments (Berkout and Osstingh 2008).

3.4.4 Out-of-Pocket (OOP) Payments

OOP is not a typical form of EBHI because it is not a form of insurance plan. However, this financing method was one of the commonest payments before CEBHI (as illustrated in Figure 2.2, page 28). OOP payments were 38% of private health expenditure and 9.7% of the total health expenditure in Saudi Arabia (Sekhri and Savedoff, 2005). The implementation of the CEBHI in Saudi Arabia has reduced OOP payments (as discussed in section 3.7.7).

Although Singapore is considered a high-income country, it finances more than two-thirds of its health spending through OOP payments (Wagstaff, 2005). OOP payments govern up to 80% of total health expenditure in many low-income countries such as Myanmar, the Democratic Republic of Congo, Guinea and Tajikistan (ILO, 2008). This payment method dominates and accounts for more than 40% of total health expenditure in many countries in Europe and Central Asia, including Moldova, Macedonia, Uzbekistan, Ukraine, Belarus, and Russia (Langenbrunner, 2003). The average value of OOP expenditure in 45 low-income countries was 49.3% (ILO, 2008). It has been reported that payments through OOP lead to inequity, increased poverty, and disastrous health expenditure (ILO, 2008). This method is not necessarily affordable for the poor, or people with low incomes, so it could be considered regressive (Mills, 2007). Reduction of direct payments is very important for increasing the equity of financing (Mills, 2007).

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3.4.5 Other Funding Sources

There are other sources for financing EBHI such as donations, grants, employers' funds and saving accounts (ILO, 2008). However, these are very limited and most significant in low-income countries (Mills, 2007).

3.5 The Link between CEBHI and Different Healthcare Financing Mechanisms

This study distinguished the difference between private and public health insurance, based on the source of funds. The CEBHI shares the nature of the health plan with the public insurance (mandatory) and shares its funding source with private health insurance. The OECD distinguishes public from private insurance on the basis of the source of funds (Jost, 2001). Private health insurance is often characterised as voluntary for profit commercial coverage in contrast to mandatory, publicly financed and publicly managed insurance. Ultimately, all money comes from household or employer income, but in public insurance programs, this money is channelled through the state via general or social insurance tax, whereas in private insurance, the money is paid directly to the risk pooling entity (Sekhri and Savedoff, 2005). Therefore, the CEBHI is private health insurance, although mandatory by law for all expatriates, and is based on the form of contract between the risk pooling entity and the insured individuals or groups. For example, the main difference between social and private health insurance is the type of contract between the risk pooling entity and the insured individual or groups (Dreschler and Jutting 2007). However, private insurance is based on a contract between the insurer and the insured individual or groups. The level of insurance premium is determined by the benefits coverage, whilst SHI is based on tax as a contribution.

The next section discusses healthcare financing characteristics in Saudi Arabia, with a focus on the recently implemented CEBHI scheme. In addition, the CEBHI scheme will be linked with the characteristics of GCC health financing systems, and similarities and differences drawn between GCC countries and other high and low-income countries, to provide some recommendations for health policy makers.

3.6 Justification for Selection of Countries for Comparison

The GCC countries have substantial expatriate populations. Expressed as a percentage of the population, Kingdom of Bahrain has 40.7%, Kuwait 68.8%, Oman 24.4%, Qatar 78.3%, Saudi Arabia 25.9% and UAE 71.4% (Shah, 2009). These countries share the objective of minimizing government health expenditure by reducing expatriate health care expenses.

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However, each country uses different strategies. For example, the Ministry of Health (MOH) in the UAE requires all expatriates to pay annual fees for using government health care services, and additional fees for prescription drugs and diagnostic tests such as X-rays (WHO, 2006g). More recently, the state of Abu Dhabi in the UAE, implemented a law obliging all employers to provide health insurance cover for employees and their families under three insurance schemes: one for Nationals (Thiqa), one for unskilled labourers and lower paid employees (Basic) and one for higher skilled expatriates (Enhanced). A study found differences in the utilisation of medical care amongst these schemes (Koorneef et al., 2012), in that those nationals within the majority high income group, utilised medical services more than those belonging to the expatriate labour worker low income group. However, the impact of the Abu Dhabi reform is still in its early stages, having been implemented within Abu Dhabi only, as opposed to the entire UAE. By contrast, the Kingdoms of Bahrain and Kuwait use a cost-sharing method to control expatriate utilisation of public services. Expatriates pay fees for visiting a district health centre, non-emergency treatment, surgical procedures, normal delivery and other medical services and procedures (WHO, 2006c, WHO, 2006b). Similarly, in Oman, all expatriates in the private sector must be covered by their employer or sponsor (WHO, 2006d).

Saudi Arabia is one of the few GCC countries to have reformed its private healthcare system and reduced expatriate access to government resources. If the CEBHI proves to be an effective scheme for increasing expatriate access to medical care, it could be adapted by other GCC countries; not least, since most of the GCC countries are currently looking into different mechanisms to finance their health care services. For example, Qatar's recently developed strategic plan mentioned that a health insurance scheme will be implemented, following lessons learned from neighbouring countries (Ministry of Health Qatar, 2011). In addition, one of Oman's national strategic plans was to use health insurance as a tool to reduce health care expenditure (Ministry of Health Oman, 2006); however, this did not identify any means of achieving the objective. Although some authors identified financing options for financing health care services in Oman, the appropriate financing method to be implemented was not discussed (Al Dhawi et al., 2007). The Kingdom of Bahrain recently examined different options of health insurance as a means of increasing access to medical care to all individuals (Ministry of Health, 2011). The Kuwait national health care system is in the process of reforming its health care under the new Kuwait Health Assurance Company (KHAC), which will affect both nationals and expatriates alike (Marius, 2011).

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In summary, whilst the GCC countries appear to be looking at various options for financing their healthcare services, they have yet to identify or implement an approach enabling them to achieve this objective, and are at the stage of trying to learn lessons from one another's experiences. However, this thesis might assist those countries to learn from the implementation of CEBHI in Saudi Arabia, since Saudi Arabia is the first country to implement this to expatriates throughout the entire country.

In the next section, Kutzin's descriptive framework is adapted to conceptualize different components of Saudi Arabia's health financing resources in connection with GCC countries, as well as low, middle and high income countries. This analysis will include the impact of the CEBHI from both the supply and demand side, and from a financing perspective; more specifically, the expenditure on supply²² of healthcare (O'Donnell, 2007) (both government and private sectors) as well as the demand²³ side (O'Donnell, 2007), such as OOP payments and co-payment.

3.7 How the CEBHI Impacts Financing of Medical Care

3.7.1 Collection of Funds

Oil, a commodity with a fluctuating price, is the main source of revenue for financing health care in GCC countries (Sturm et al., 2008). Like other GCC countries, the Saudi government, according to the law, is obliged to provide free health care services for its citizens, as per article 31 in the basic law of governance (Government, Hediger et al., 2007). Many countries including Qatar, a GCC member, use a dedicated part of their "sin taxes" (excise duties imposed on alcohol, tobacco, or gambling) to finance some of its health care activities (WHO, 2004a). However, alcohol and gambling are forbidden in Saudi Arabia and a tobacco tax has never been used to finance health care; even so, scope remains for its introduction given the prevalence of tobacco use²⁴ (Arabiya, 2012). Overall, therefore, the bulk of health care funding in Saudi Arabia comes from the government's annual budget, 90% of which is derived from oil revenue (Ministry of Economy and Planning, 2008). Other sources are too limited to be considered adequate for financing health care services.

²² Suitable quality and effective healthcare hard to be presented

²³ "individuals may not utilize services from which they could be benefits"

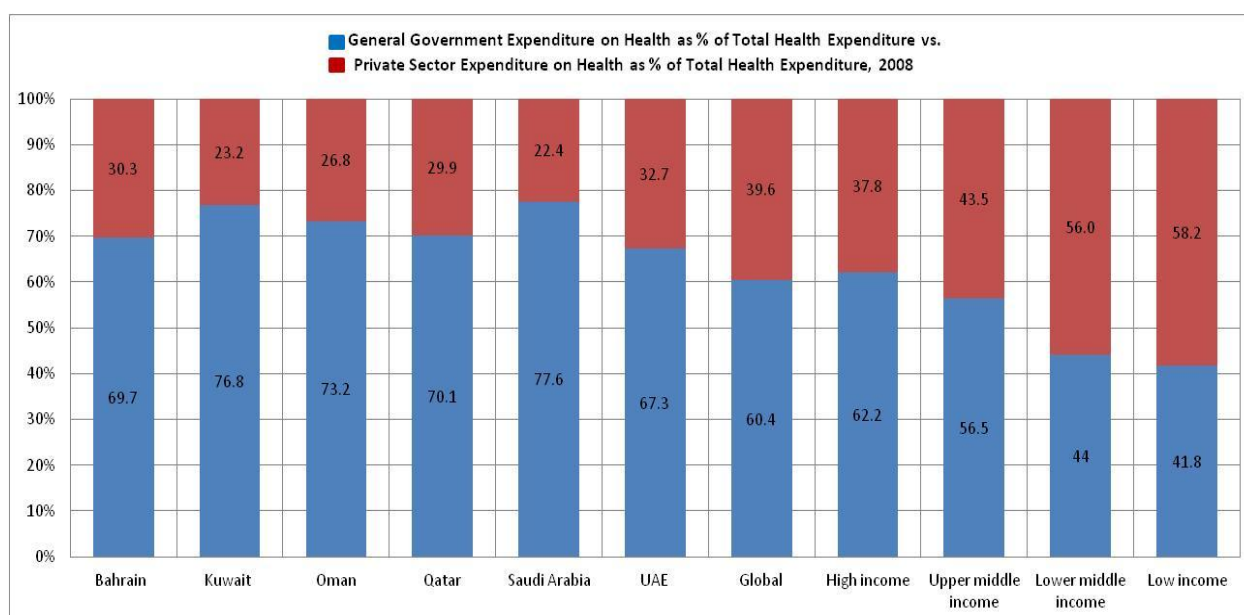
²⁴ Saudi Arabia is ranked 4th globally for its tobacco consumption.

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3.7.1.1. Government Expenditure

Although one of the CEBHI scheme's objectives was to reduce dependency of the healthcare budget on the government's budget, the Saudi government's expenditure on health not only still provides the majority of the healthcare budget like other GCC countries, but also provides the highest percentage amongst GCC countries. For example, Saudi Arabia's general government expenditure on health as a percentage of total health expenditure is 77.6%, whereas the average is 62.2% for high income countries (see Figure 3.2). In addition, the expenditure on health as a percentage of general government expenditure increased from 8.4% in 2007 to 8.8% in 2008, following implementation of CEBHI (see Figure 3.3, page 73). The general government expenditure on health increased from SR 39,086 to SR 45,537 between 2007 and 2008 as illustrated in Table 3.1 - page 76.

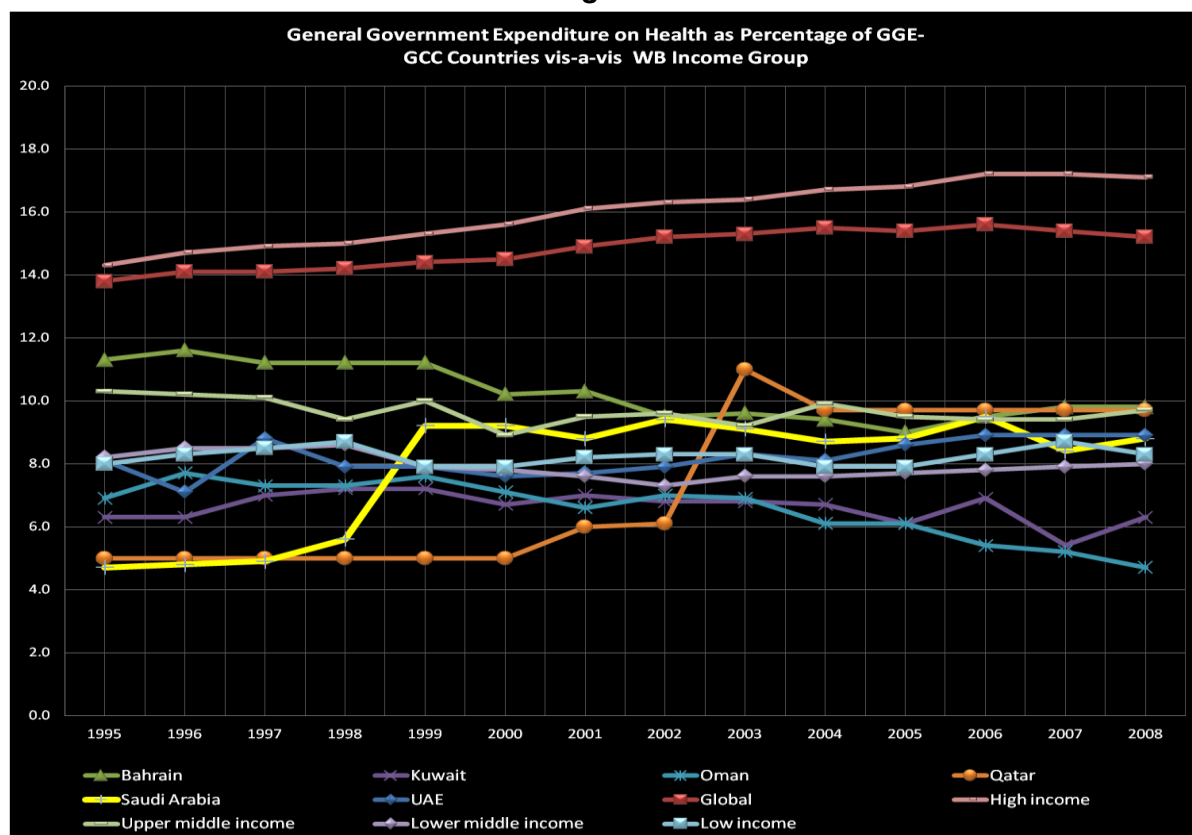
Figure 3.2: GCC Countries General Government Expenditure on Health as a Percentage of Total Health Expenditure (THE) compared to Private Expenditure on Health as a Percentage of THE, 2008



Designed by the author based on WHO databases

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Figure 3.3: General Government Expenditure on Health as a Percentage of General Government Expenditure for GCC Countries, World Bank Income Groups, and WHO regions



Designed by author, based on WHO databases

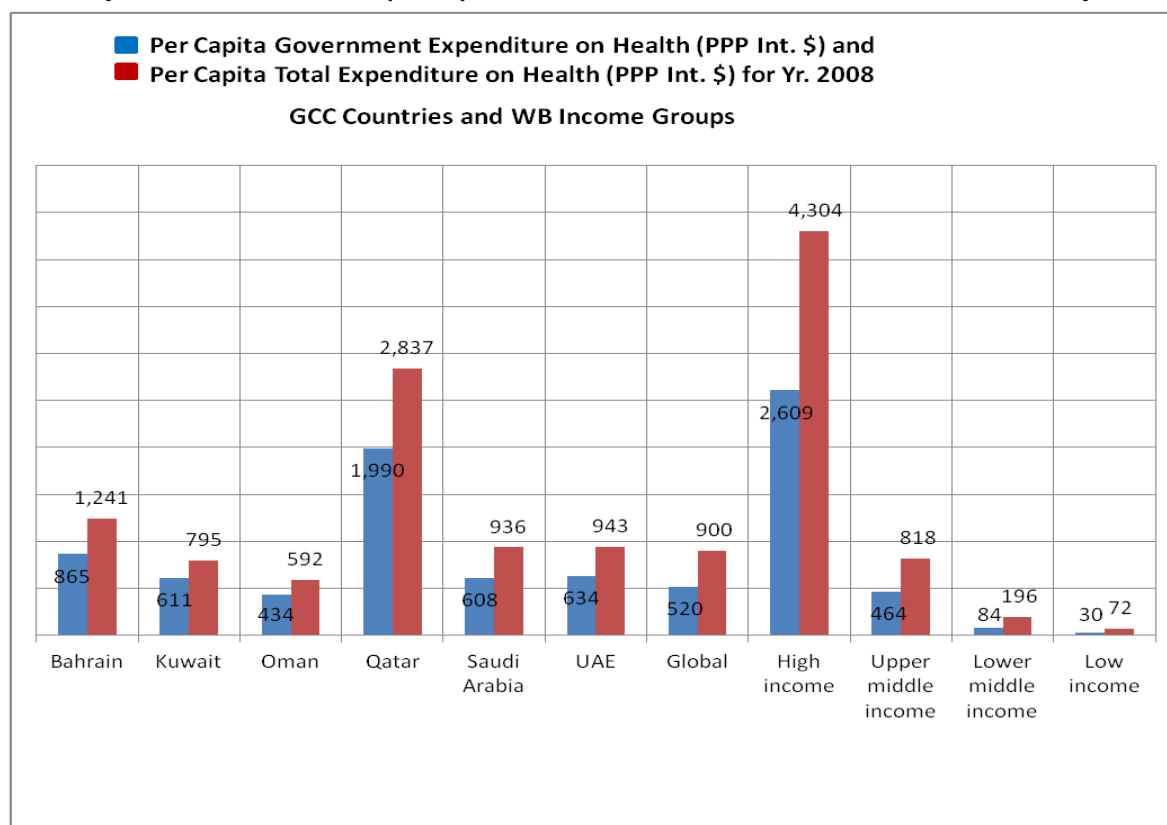
However, the expenditure on health as a percentage or per capita of general expenditure in GCC countries is low, compared to other high-income countries. For example, per capita total expenditure on health (PPP Int. \$) is \$936 in Saudi Arabia whereas the same figure in high income countries is \$4,304 (see Figure 3.4). However, GCC countries with the exception of Oman, are between the high-income and upper-income countries in terms of total expenditure on health per capita (see Figure 3.4)

In order to evaluate Saudi Arabia's expenditure on health, this must be measured over a long period of time. The Saudi government expenditure on health was low for a long period between 1984 and 1998. The general government expenditure on health as a percentage of general government expenditure was between 4.7% and 5.6% in 1984 and reached 9% in 1998 (see Figure 3.3). Per capita, government expenditure increased more than 230% (or more than 84% in I\$ "International Dollars") between 1998 and 2008 (see Table 3.1). The government has increased healthcare funding to recover from the period of poor health

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infrastructure before 1999 when oil prices were very low (Ministry of Economy and Planning, 2008).

Figure 3.4: Per Capita Government Expenditure on Health (Int. \$) and Per Capita Total Expenditure on Health (Int. \$)²⁵, for 2008 - GCC Countries vs. Income Groups²⁶



Designed by author, based on WHO databases

Despite concern regarding the level of general government expenditure on health, it is also the case that GCC countries, as with other Middle Eastern countries, are characterised by fragmentation of the health system. This leads to fragmentation of health care financing (Gericke, 2004, Supreme Council of Health, 2011, Ministry of Health Oman, 2006, Ministry of Health, 2011, General Secretariat of the Executive Council et al., 2008, Al Razzi Holding K.S.C.C, 2012). For example, the health care funding in Saudi Arabia is split amongst more than eight different government agency budgets, and each agency provides health services for its own targeted population (see Figure 3.5). However, the MOH in Saudi Arabia is the main healthcare provider, accounting for approximately 60% of all health services (see

²⁵ International Dollar

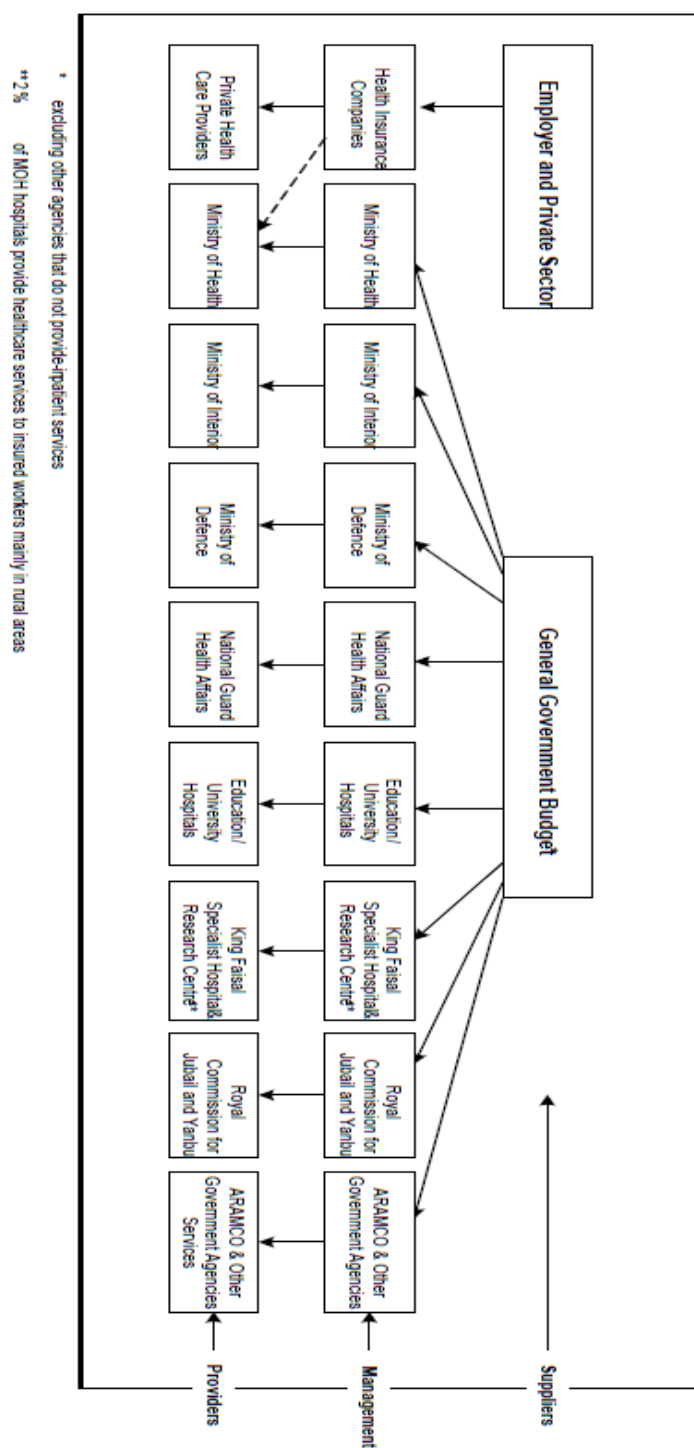
²⁶ PPP-Purchasing Power Party

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Table 3.2 – page 77). Other government offices provide comprehensive health services for their employees and dependents (see Table 3.2-page 77). These providers have maintained a fairly static proportion (approximately 20%) of hospital beds since 1995 (MOH, 1995, MOH, 2003, MOH, 2008) and their budgets are allocated directly from the Ministry of Finance through their respective ministries or agencies. As these groups provide services independently, an individual could potentially have a medical record with all of these groups, whereas other citizens may not have access to any facilities due to the non-availability of services. The benefits offered by these groups are more extensive than those covered by the MOH (Al-Sharqi and Abdullah, 2012). Therefore, in the context of the Saudi health care system, the per capita distribution of general government expenditure on health is likely to be inequitable due to the fragmentation of the health care budget amongst different government agencies. However, the benefit incidence of the system could potentially be improved either by combining these governmental systems or allocating the budget based on a per capita need formula (Schieber, 2005).

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Figure 3.5: Main Healthcare Suppliers, Management and Providers in Saudi Arabia
(Source: Designed by author)



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Table 3.1: Saudi National Health Expenditures (Saudi Riyal) (WHO, 2010c)

A. SELECTED RATIO INDICATORS * FOR HEALTH EXPENDITURE	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Expenditure on Health (THE) as % of GDP	2.3	2.3	2.4	2.7	3.5	3.7	4.0	3.8	3.5	3.3	3.2	3.4	3.4	3.3
General Government Expenditure on Health (GGHE) as % of THE	67.8	70.1	72.3	72.5	79.5	81.7	82.0	82.0	81.8	81.3	81.5	81.5	79.5	77.6
Private sector expenditure on health (PvtHE) as % of THE	32.2	29.9	27.7	27.5	20.5	18.3	18.0	18.0	18.2	18.7	18.5	18.5	20.5	22.4
GGHE as % of General government expenditure	4.7	4.8	4.9	5.6	9.2	9.2	8.8	9.4	9.1	8.7	8.8	9.5	8.4	8.8
Private Insurance as % of PvtHE	13.6	13.6	13.4	13.3	16.6	18.3	20.4	17.4	17.6	17.3	19.8	26.2	30.3	36.7
Out-of-pocket expenditure as % of PvtHE	47.5	45.6	44.9	48.2	44.6	41.3	40.8	41.9	40.1	38.5	34.9	32.3	32.2	28.4
B. VALUES UNDERLYING RATIOS AND LEVELS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Expenditure on health	12,144	13,629	14,981	14,669	21,290	26,398	27,257	26,649	28,506	30,591	37,434	45,773	49,191	58,644
General government expenditure on health	8,233	9,554	10,830	10,637	16,921	21,566	22,349	21,849	23,306	24,857	30,503	37,283	39,086	45,537
Private expenditure on health	3,911	4,075	4,151	4,032	4,369	4,832	4,908	4,800	5,200	5,734	6,931	8,490	10,105	13,107
Private Insurance	533	553	557	535	725	884	1,000	834	916	992	1,370	2,222	3,065	4,805
Out-of-pocket expenditure	1,857	1,858	1,862	1,942	1,948	1,994	2,005	2,011	2,085	2,207	2,417	2,741	3,254	3,720
Gross Domestic Product (GDP)	533,500	590,750	617,900	546,650	603,590	706,660	686,300	707, 070	804 ,650	938, 770	1,182, 510	1,335, 580	1,439, 520	1,758, 000
Per Capita Government Expenditure on Health (PPP int. \$)	247	266	293	330	465	529	566	533	535	517	536	603	610	608
Per Capita Total Expenditure on Health (PPP int. \$)	365	380	406	455	586	647	690	650	655	636636	789	878	925	936

Source: (WHO, 2010c)

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Table 3.2: Health Service Operators, Number of Hospitals and Total Beds, and Primary Populations Served (2008)

Health Service Operators	Number of hospitals/ total beds	Primary Population Served	Percentage of Beds in Various Health Sectors
I. Government Sector			58.9
a. Ministry of Health (MOH)	231 / 31,720	All Saudi citizens & expatriate employees in government services	
b. Other Government Sectors			20.0
- Ministry of Defence and Aviation (MODA)	22 / 5,172	Employees and their relatives	
- National Guard	4 / 1,547	Employees and their relatives	
- Ministry of Interior	1 / 347	Employees and their relatives	
- King Faisal Specialist Hospital and Research Centre ²⁷	2 / 1,008	Referred Saudi citizens	
- University students and employees	4 / 1,873	All Saudi citizens with a focus on University employees & students	
- Royal Commission for Jubail and Yanbu (RCJY)	4 / 459	RCJY's employees	
- ARAMCO Hospital	2 / 400	ARAMCO Employees	
- Red Crescent Society	-	Emergency Medical transportation	
Total Other Government Sector Hospitals/Beds	39 / 10,806		
Total Government Sector Hospital / Beds	270 / 42,526		
II. Private Sector (including Company Operated Hospitals)	123 / 11,362	Saudi Citizens and expatriates	21.1
Total Hospitals / Beds	393 / 53,888		
Rate of Beds / 10,000 pp	21.70		

Designed by Author, based on MOH data (MOH, 2008)

²⁷Combined data from KFSHRC Riyadh and Jeddah Hospital.

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3.7.1.2 Private Sector Expenditure

Prior to the implementation of CEBHI, the major source of income for private health care services was Saudi individuals, capable of paying OOP expenses and private companies; whereas expatriates who worked in big leading companies received voluntary health insurance through their employers as one of their recruitment benefits as discussed in section 2.6, Chapter 2. However, there were health insurance companies prevalent in the market without regulations (Mufti, 2000). Implementation of the CEBHI has had a clear and positive impact on payment methods: OOP payments decreased and private insurance expenditure has increased (see Figure 3.6). After the implementation of CEBHI, between 2006 and 2008, there was a huge increase (more than 10%) in private insurance as a percentage of private sector expenditure on health (Figure 3.6); as a consequence of which, not surprisingly, OOP payments decreased (approximately 4%)(Figure 3.7). The actual proportion of private expenditure from total health expenditure did not change much (from 18% in 2006 to 22% in 2008) (see Table 3.1). However, in theory at least, since expatriates comprise almost one-third of the population in the private sector, the share of private expenditure would need to be increased to reflect the proportion of the private sector population in Saudi Arabia. In other words, the percentage of Saudi and expatriate workers in private and government companies is 30% of the total population (excluding families) (GOSI, 2008). This segment of the population should receive their health care services through the private sector. Therefore, in accordance with the population make-up, private expenditure on health care ought to be more than 30% of the total expenditure on health. However, in 2008 private sector expenditure on health as a percentage of total health expenditure was only 22%. There are several reasons for this relatively low expenditure:

- 1) Low private expenditure is related to the need for more legislation, an unclear vision of the private sector and manpower challenges (Hediger et al., 2007). These reasons apply to all GCC countries. In the Saudi Arabian context, the law for private health care services states that at least one of the owners of a health centre must be a Physician, thereby discouraging businessmen from investing in health care (Cabinet of Ministers, 2002). As a result, the number of health care providers during 2006-2008, did not expand as quickly as the number of new health insurance companies (Alkhamis, 2008b, Alkhamis, 2008a). For example, according to a report from the MOH, the increase in private health services has not kept abreast of the huge increase in demand on the private sector since 2006 (MOH, 2008).

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- 2) The growth of private sector expenditure on health care between 2006 and 2008 (54%) was more than the government growth percentage (22%). The large increase (31%) in Gross Domestic Product (GDP) between 2006 and 2008 (WHO, 2010c) meant that although growth of the private sector (54%) between 2006 and 2008 was more than the government growth percentage (22%), the impact on total health expenditure was small, given the dominance of government expenditure in total expenditure²⁸, when considering the financial implications of CEBHI. However, private sector expenditure was higher prior to the implementation of CEBHI. For example, private sector expenditure on health was more than 30% of the total expenditure in 1995 funded from out-of-pocket expenses (see Table 3.1). When government expenditure on health was low, private expenditure increased, mainly via out-of-pocket payments, and this mode of finance reached 48% in 1998 (see Figure 3.7).
- 3) The CEBHI scheme linked the granting or renewal of a residency permit (Iqama) to confirmation of the provision of a cooperative health insurance policy (Cabinet of Ministers, 1999b). There would have been a large number of expatriates whose Iqamas were not due for renewal at the time of implementation in late 2008, meaning employers could have avoided meeting their obligation. There are also reports that some employers pay insurers 'under the table' to renew employee residency permits, without the employees actually having health insurance (Alsaedi, 2011). These reports require further investigation to assess the volume of this fraud and the impact this has on private sector expenditure.

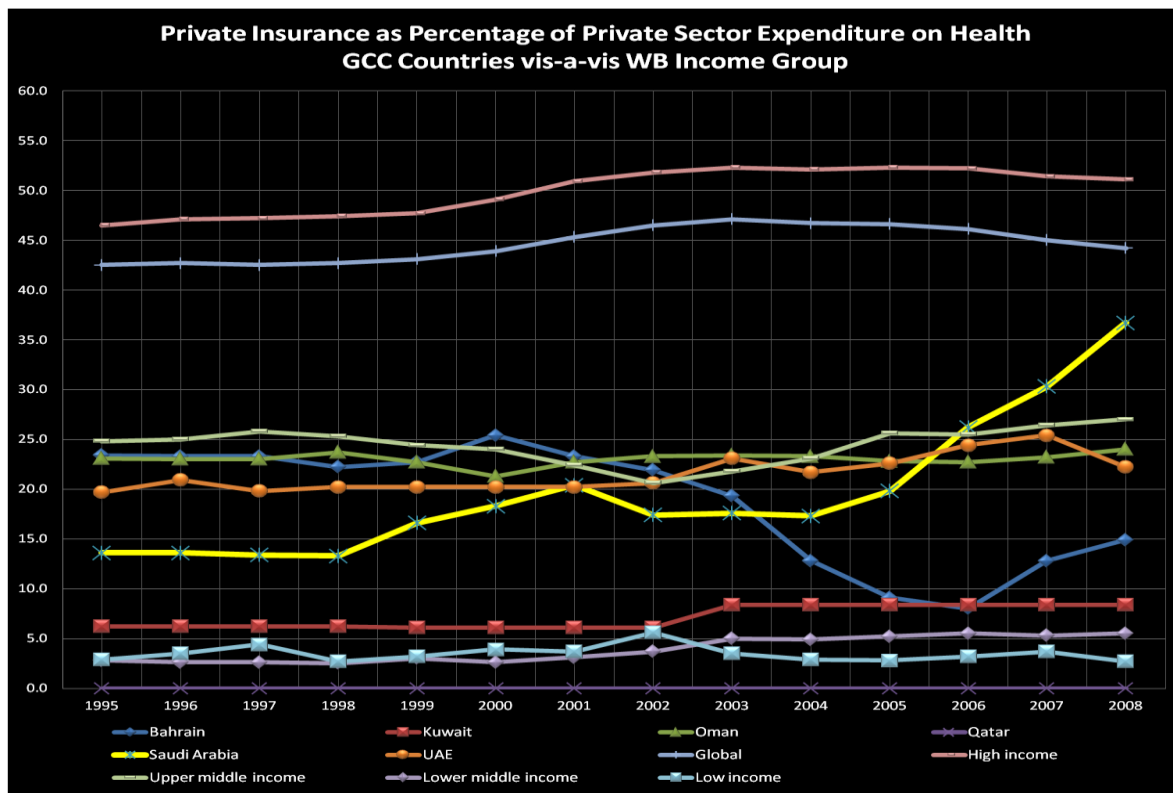
In addition, the law governing the supervision of cooperative insurance was only developed in 2003. Prior to this the health insurance market was under development, and as a consequence, the relationship between health care providers and insurers was unregulated. One of the main reasons behind this delay was the resistance from some Islamic scholars who believed that commercial insurance should not be permissible in Islam. Importantly, the constitution of Saudi Arabia is based on the Holy Quran and the Sunnah (Prophet Mohammed's recorded sayings and actions) and the health insurance scheme must be linked to the constitution of the country. Only cooperative health insurance and not-for-profit

²⁸ The private expenditure on health increased after the implementation of CEBHI by more than 54%, from SR 8,490 billion to SR 13,107 billion between 2005 and 2008 respectively, but the government expenditure on health increased from 37,283 billion to 45,537 billion during the same period.

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health insurance are permissible under Islam. The term 'cooperative health insurance' has been used for CEBHI, which has led to legislation being passed, but it has been suggested that CEBHI does not meet the criteria of cooperative health insurance because the money goes back to the insurance company owners (Al-Dussary). The religious acceptance of insurance was based on the Fatwa of the Council of Senior Scholars, published in 24 March 1977 on cooperative insurance, but this Fatwa does not apply to the current practice of health insurance because it is now private and commercial (Al-Dussary, 2009, Al-Ashak, 2009). The resistance to health insurance prior to approval was apparent during the Council's voting. The members voted equally (50% accepting and 50% rejecting the scheme) (*Majilas Al Shora*) (Al-Rabeeah, 2009), with the Council Chairman's vote being responsible for the passing of the health insurance scheme before eventually being approved by the Royal Cabinet.

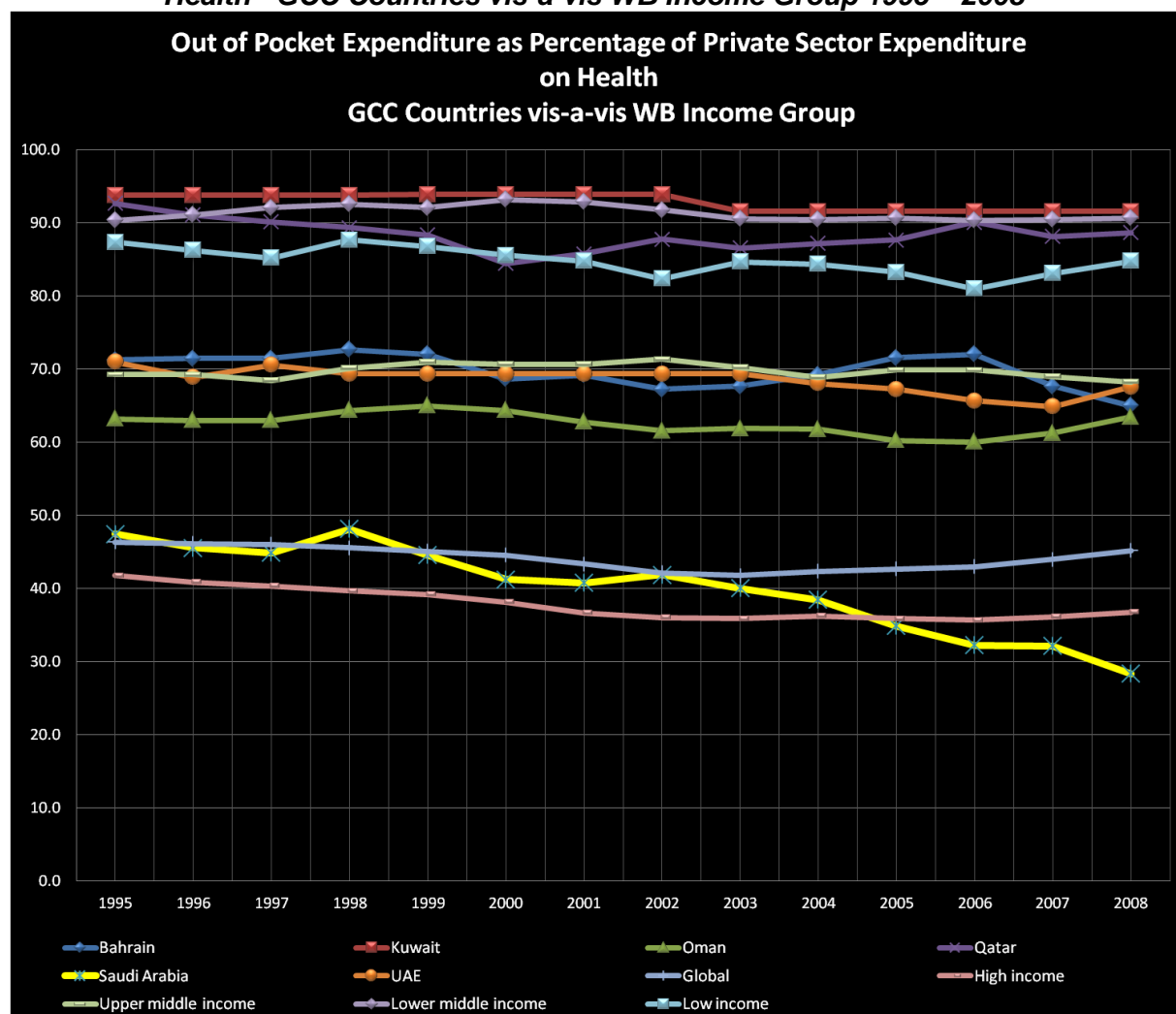
Figure 3.6: Private Insurance as Percentage of Private Sector Expenditure on Health GCC Countries vis-à-vis WB Income Group, 1995 – 2008



Designed by author, based on WHO databases

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Figure 3.7: Out-of-pocket Expenditure as Percentage of Private Sector Expenditure on Health - GCC Countries vis-à-vis WB Income Group 1995 – 2008



Designed by the author, based on WHO databases

3.7.2 Pooling of Healthcare Revenues²⁹

In the Saudi context, there is a fragmentation of pools in the private sector. Health insurance companies provide coverage based on risk-based pooling similar to voluntary health insurance that is, insurers charge different premiums for different risk categories and different company sizes. Therefore, the premiums for small employers are critical for the success of the CEBHI scheme, mainly because the growth rate of small companies in Saudi Arabia that have less than five employees was the highest at 26.1% between 2006 and 2007. The line item budget is the main budget format used in GCC countries for the government health care sector; hence the pooling of health care revenues is fixed and

²⁹ Means "the accumulation of prepaid healthcare revenues on behalf of a population".

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isolated from the demand side. Recently, some of the GCC countries have been moving to change their budget format in order to improve the fit between the demand and supply sides. For example, Qatar, which already has a system of national health accounts, announced in its National Development Strategy 2011-2016 that they want to enhance their monitoring and control of health care expenditures. To this end, Qatar will be making the change from lump sum budgets to either activity-based or performance-based budgeting as soon as practicable (Ministry of Health Qatar, 2011).

As previously indicated, the pooling of health care revenues in the private health care sector is fragmented. In Saudi Arabia's CEBHI context, health insurance companies provide cover based on risk-based pooling similar to voluntary health insurance; that is, insurers charge different premiums for different risk categories and different company size. Therefore, the size of the premiums for small employers is critical to the success of the CEBHI scheme, especially since between 2006 and 2007 around 50% of the total number of expatriates were employed by small employers (GOSI). Other GCC countries such as Bahrain and Oman intend to move towards a performance budget instead of passive (line item budget or lump sum budget), but have not yet identified the means of achieving this objective (Ministry of Health, 2011, Ministry of Health Oman, 2006, Al Dhawi et al., 2007).

3.7.3 Purchasing³⁰

Since there is no separation between the purchase and the provision of health care in the government sector, providers are paid directly in GCC countries. However, in Saudi Arabia's private health care sector, the CEBHI is part of a market-oriented system, with competition from other providers. The situation is therefore similar to the United States, where competition exists between the health care providers and health insurance companies. However, in the United States, the competition amongst health care providers and health insurance companies has not helped reduce costs, with the presence of many purchasers diluting incentives for providers (Relman, 2007). Specifically, having multiple purchasers has led to different costs for the same health condition or an adjustment of the charges for different purchasers of the same services (Relman, Hsiao, 2007). In the CEBHI context, the competition did not reduce the cost of healthcare service delivery. For example, the insurance premiums increased because of an increase in demand in the context of a limited supply of insurance. The cost of health insurance policies has increased in the past three

³⁰ Means "the transfer of pooled resources to service providers on behalf of the population for which the funds were pooled".

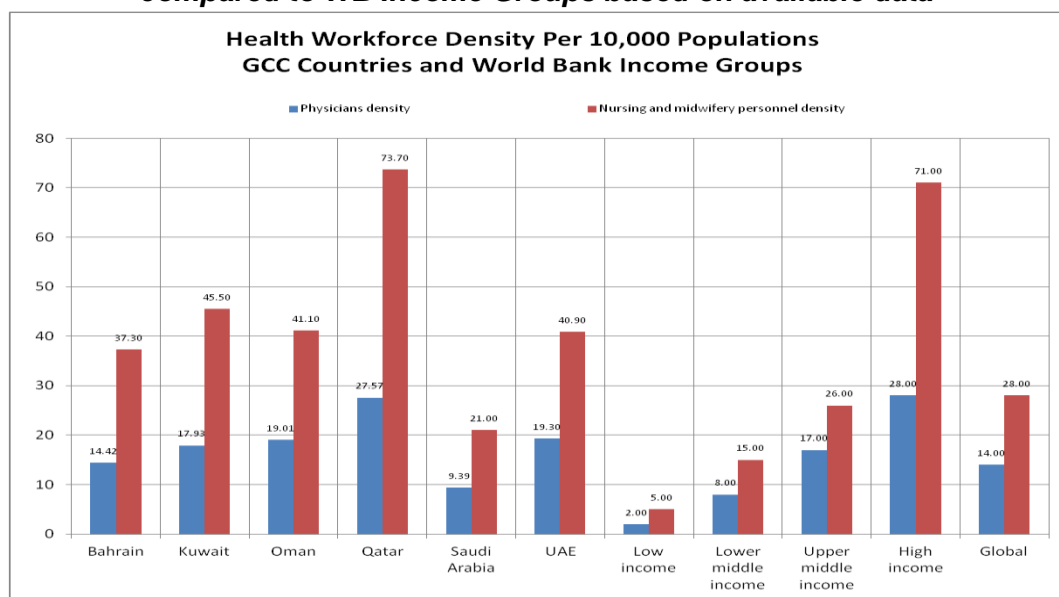
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years by 200% (AlGhashari, 2008). In addition, covering high-risk expatriates will of itself lead to higher insurance premiums.

3.7.4 Provision of Services

Providers/physician supply is a reflection of the community ability to provide access to medical care (Gold and Edan, 1998). Although healthcare expenditure and per capita expenditure in GCC countries is higher than upper-middle income countries, the GCC countries' health care indicators are lower than upper-middle income countries. For example, the density of health personnel in most GCC countries per 10,000 people is still less than that of upper-middle income countries (see Figure 3.8). Similarly, the number of beds per 10,000 people in Saudi Arabia and GCC countries is less than upper-middle-income countries (see Figure 3.9). Healthcare providers in Saudi Arabia can be classified into three categories based on their source of funds and ownership: MOH, other government healthcare providers, and private healthcare providers (see Table 3.2- page 77).

Figure 3.8: Health Workforce Densities per 10,000 Population of GCC Countries compared to WB Income Groups based on available data

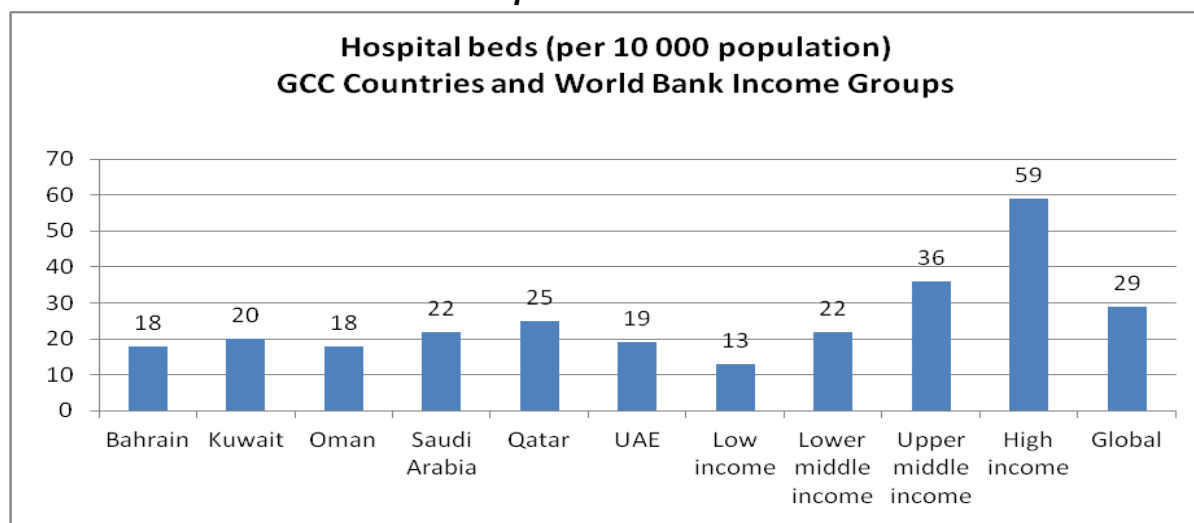


Designed by the author, based on WHO databases³¹

³¹ Figures for Bahrain, Oman and Saudi Arabia based on year 2008 data, UAE figures based on 2007 data; Qatar figures based on 2006 data and Kuwait figures based on 2009 data. All data from World Bank Income groups are based from 2007 data.

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Figure 3.9: Hospital Beds per 10 000 Population of GCC countries and World Bank Income Groups based on available data



Designed by the author, based on WHO databases³²

3.7.4.1 Ministry of Health and Other Governmental Healthcare Providers

As mentioned previously, the MOH is the main healthcare provider, and the low quality of services provided by them is considered an obstacle to accessing healthcare (Alkhamis, 2008b). A huge disparity exists amongst healthcare providers due to a lack of standardization, mainly between MOH facilities and other government healthcare services (Al-Sharqi and Abdullah, 2012). For example, only a few tertiary public healthcare facilities are under the operation of other government healthcare providers, providing state of the art technology with a high quality of care, being difficult to access, and therefore have fewer patients (Al-Yousuf et al., 2002).

In addition, the majority of the MOHs' healthcare centres and hospitals operate in rented buildings and lack the essential requirements for operating a superior healthcare facility (Al-Sharqi and Abdullah, 2012). A study by Al-Ahmadi and Roland (2005) identified the factors hampering quality in primary healthcare facilities: inadequate access for those with chronic diseases, poor health education, and prescriptions and referrals (Al-Ahmadi and Roland, 2005).

³² All GCC countries hospital beds figures are based on year 2009 data, except for UAE (based from 2008 data) and Qatar (based from 2007 data). Income Groups data are based on year 2005 data.

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MOH hospitals are also known to have efficiency problems. For example, the MOH hospital occupancy rate is less than 65%, which is below the international standard (The World Bank, 2005).

3.7.4.2 Private Healthcare Sector

One of CEBHI's main objectives is to provide financial risk protection and access to healthcare for expatriate workers in the private sector. CEBHI must protect expatriates from incurring catastrophic costs when an insured event occurs.

Saudi and expatriate residents accessed private healthcare prior to the implementation of CEBHI. Some of the reasons that Saudi citizens accessed private healthcare services included shorter waiting times before being seen by Doctors and before the next appointment, longer appointments with Doctors, good communication skills of receptionists, provision of more diagnostic procedures and good hospital environments (Mufti, 2000).

However, since its implementation and due to the workload of private providers, poor quality of private healthcare services is deemed an obstacle to accessing medical care. A recent study of the Saudi Arabian scheme concluded that there is inequity in accessing health services amongst different insurance categories (Al-Osaimi, 2009). It was found that inequity of access to healthcare was not because of the cost of the services provided, but due to the low quality of care provided for the lower class policies (Al-Osaimi). In Abu Dhabi between 2009 and 2010 and following implementation of the health insurance plan, the total number of healthcare providers grew by 12.4% (Dhabi, 2010). Unfortunately, there is no available data to help understand the impact of this contribution regarding the quality of care.

3.7.4.3 Provider Distribution

Saudi Arabia has a huge land area as discussed in Chapter 1 section 1.3.3. Two cities, Riyadh and Jeddah, have 48% of the private hospitals and 55.5% of the total hospital beds (MOH, 2008). Furthermore, approximately 53% of the nation's dispensaries and 74% of the private clinics are present in these two regions (MOH, 2008). This distribution corresponds to the population distribution. However, there are more than 2,000 small villages with a limited number of medical services, and diverse populations scattered over large areas (MOH, 2010c). Therefore, the CEBHI scheme allows government health services to provide private services in rural areas because of the unavailability of the private providers (CCHI, 2009a) as illustrated in Figure 3.5 - page75.

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3.7.5 Out-of-Pocket Payments (OOP)

With the exception of Saudi Arabia, most GCC countries share the dominance of out-of-pocket payments for the financing of health care with low-income countries. In Saudi Arabia, since the introduction of the CEBHI scheme, out-of-pocket payments have decreased and private insurance expenditure has increased (see Figures 3.6 & 3.7, page 80 & 81). In the region more generally, when government expenditure on health is low, private expenditure, specifically out-of-pocket payments, tend to be high (WHO, 2009b). Out-of-pocket payments in low-income countries accounts for 56% of the total health expenditure, but only 14% in high-income countries (WHO, 2010b). A recent study showed that 49% of health financing in the Middle East comes from out-of-pocket payments (Elgazzar et al., 2010). Although the study did not include GCC countries, the out-of-pocket payments in GCC countries are high but for different reasons. First of all, some GCC countries charge expatriates for the use of government health services. For example in Kuwait, with the highest level of private household out-of-pocket payments amongst GCC countries, expatriates have to pay for all types of health care visits, including visits to primary health care centres (WHO, 2006c). Secondly, GCC countries are high-income countries and some citizens, if they prefer, have enough money to pay for private facilities, as evidenced by the practice in Qatar (WHO, 2006e). In Saudi Arabia, before the implementation of CEBHI, and due to the low quality of public health services, the major source of private sector expenditure was Saudi individuals capable of paying out-of-pocket expenses, and private companies (Mufti, 2000).

3.7.6 Benefits Package

The unified health policy has pre-determined the minimum health benefits and is controlled by CCHI. Therefore, an employer cannot select to cover benefits less than the benefits package provided in Table 3.3 or use this to control their costs, as has been the case in the United States (Fronstin, 2010).

The CEBHI benefits package has a fixed pre-determined co-payment for outpatients and other services. The co-payment towards the invoice has been determined by the new policy (CCHI, 2009b). However, it is not clear whether the employee's co-payment is affordable in relation to salary. The average expatriate salary in the private sector was less than \$270 per month (Central Department of Statistics & Information, 2008) and it is not clear if this includes housing allowance. An expatriate must pay an average 30% (consultant physician fees) of their salary to cover the co-payment, excluding the cost of transportation and other expenses. Therefore, the maximum amount they can pay is \$26.67 for specialist visit fees or

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\$40 for a consultant visit or \$66.67 for an exceptional medical specialist. According to WHO, the co-payment is considered to be catastrophic if it is more than 40% of a household's income (Carrin and James, 2004). Further investigation would be required to determine the extent by which the co-payment is a barrier to accessing medical care.

A few years ago, the state of Abu Dhabi implemented a law that obligated all employers to provide health insurance coverage for employees and their families. The country has three insurance schemes: one for Nationals (Thiqa), one for unskilled laborers and lower paid employees (Basic), and one for higher skilled expatriates (Enhanced). A study found there to be a difference in the utilisation of medical care amongst these schemes (Koornneef et al., 2012). The people having the most generous scheme (Thiqa) and low co-payment were seen to use the medical services more than those having the least generous scheme and higher co-payment (Basic).

In the private health insurance industry such as that of the United States, almost all large companies having more than 500 employees are self-insured. These companies have worked to design plans that increase the deductible payment to USD500 or more per person (Swartz, 2008). However, under CEBHI, employers must pay the entire premium. The CEBHI established that if employers did not subscribe or failed to pay premiums for their workers, then the employer would be required to pay the premiums plus a limited fine, and could lose their right to accrue expatriate workers (Cabinet of Ministers, 1999b).

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Table 3.3: Cooperative Health Insurance Schedule

Policy Coverage	Maximum Benefit Limit/ Person	Covered Treatments/ Procedures
Maximum Benefit Limit/ Person	SR 250,000	
Outpatient Treatment Expenses - Co-insurance / Deduction	0-20% per visit, max. of SR 100 per visit	Consultations, lab tests, x-rays, medicines, medicines and other medical necessities, follow-up visits and referrals for the same illness.
Physician's Fees:		
General Practitioner	SR 50	
Specialist	SR 100	
Consultant	SR 150	
Rare medical specialties	SR 250	Cardiology, brain and neurological surgery, vascular surgery, and other sub-specialties per standards of Saudi Commission for Health Specialties.
Hospitalisation Expenses/Fees:		
Co-insurance/Deduction	None	
Accommodation for the patient	SR 600/day	
Accommodation for the hospital sitter	SR 150/day	
Pregnancy/Delivery Cost for married beneficiaries	SR 150,000	Shared Room (include charges of bed, nursing, medical visits, supervision, catering services)
Premature Babies	As per terms and conditions of the policy	Shared Room
Cost of Dental Treatment	SR 2,000	
Cost of Spectacles	SR 200	
Cost of Renal Dialysis	SR 10,000	
Cost of Acute Psychological Disorders	SR 15,000	
Corpse Repatriation to Home Country	SR 10,000	

Source: (CCHI, 2009c)

3.8 The Relevance of this Review to the Study's Aims

The literature review and data on health financing from the WHO health expenditure database can help in identifying some financial implications of the CEBHI scheme on both the supply and demand sides of healthcare services. Tackling access problem cannot be

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assist without studying it from both sides(demand and supply) (O'Donnell, 2007) “The community’s ability to provide access is provider/physician supply, that is, the total number of physicians or health care providers in a community as indicated by Gold & Eden (Gold and Edan, 1998). From the supply side, the density of health personnel in Saudi Arabia per 10,000 people is still less than that of upper-middle income countries and most GCC countries (the density of physicians, dentists and nurses per 10,000 population are 9.39, 2.3, and 21 in Saudi Arabia versus 17, 10, and 26 at upper-middle countries in 2008. The number of beds per 10,000 people in Saudi Arabia and GCC countries is less than that for upper-middle-income countries (the number of beds per 10,000 people is around 22 in Saudi Arabia versus 36 in upper-middle income countries in 2009 (see Figure 3.9 - page 84). Although (through CEBHI) Saudi Arabia is one of the few GCC countries to reform its private health care system and reduce dependence on government resources, government expenditure on health still dominates total health expenditure, and private expenditure is lower than expected. For example, government expenditure on health not only provides the majority of the health care budget, but it also has the highest percentage of government expenditure on health amongst GCC countries. Additionally, the expenditure on health as a percentage of general government expenditure, increased after the implementation of CEBHI from 8.4% in 2007 to 8.8% in 2008 (see Figure 3.3 - page 72). On the other hand, the actual proportion of private expenditure from total health expenditure has not changed much. This is supported by a MOH report that stated the “increase of the private health services has not coped with the huge increase in demand on the private sector since 2006” (MOH 2008). Indeed, all things being equal, private expenditure on health care ought to be more than 30% of the total expenditure on health as elaborated earlier. However, low private healthcare expenditure, relative to the population covered by the CEBHI scheme, may be symptomatic of the workload of private providers and the poor quality of private health care services, both of which are seen as a potential obstacle in accessing health care (Al-Osaimi, 2009). This is borne out by a study in Saudi Arabia, which reported that the low quality of services, accessibility problems, and delays in providing services, were anticipated challenges that the CEBHI scheme would face after implementation (Al-Omar, 2005). Furthermore, a recent study stressed the importance of regulating the quality of health services in the private sector in Saudi Arabia after the implementation of CEBHI (Al-Sharqi and Abdullah, 2012).

From the demand for medical care perspective, the CEBHI has had a clear positive impact on payment methods: out-of-pocket payments have decreased and private insurance

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expenditure has increased (Figures 3.6 & 3.7, page 80 & 81). However, there is a risk that the price of premiums will increase, since currently there is no control mechanism for ensuring that high-risk expatriate workers will be accepted by insurers. In addition, health insurance companies provide cover based on risk-based pooling similar to voluntary health insurance; that is, insurers charge different premiums for different risk categories and different company sizes. Therefore, the premiums for small employers are critical to the success of the CEBHI scheme, mainly because the growth rate of small companies in Saudi Arabia between 2006 and 2007 having less than five employees, is the highest at 26.1%, representing 51.6% of the total number of expatriate workers (GOSI, 2008).

A big challenge on the supply side is that the private hospitals are concentrated within the main cities of Saudi Arabia. For example, the cities of Riyadh and Jeddah have 48% of private hospitals and 55.5% of total hospital beds. In addition, approximately 53% of the nation's dispensaries and 74% of the private clinics are prevalent in these two regions (MOH, 2008). On the other hand, the insurers were one of the main barriers of access to medical care. The Cooperative Health Insurance Council in 2008 and 2009 reported that the highest percentage of complaints received were in relation to insurance companies (CCHI, 2009a, CCHI, 2008). This fact can be attributed to the under-development of the insurance industry. Although the law on Supervision of Cooperative Insurance Companies allows a minimum capital of SR 100 Million for insurance companies and SR 200 Million for companies undertaking insurance and reinsurance activities, most companies have capital below 100 million (Saudi Arabian Monetary Agency 2008). However, it is not clear whether the fixed co-payment is financially catastrophic for some expatriates, considering that the average expatriate salary is \$270 monthly.

Finally, this review will assist in the discussion chapter (Chapter 7), when full details of the impact of CEBHI on access to medical care will be elaborated. In addition, this review is extremely essential in providing a framework/mode for understanding the complex relationship of health insurance to access to medical care (study objective number 3) elaborated at the end of Chapter 7.

3.9 Relevance of the Study Results to Other GCC Countries

The three main characteristics of GCC countries identified in this thesis are high-income governments, dominant expatriate populations, and under-development of the health care system, including health care financing. These characteristics impact on the health care

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financing strategies of GCC countries in three ways. Firstly, GCC governments provide the majority share of the health budget, similar to high-income countries. Secondly, GCC countries use different strategies to control expatriate costs, but some of these strategies lead to increased out-of-pocket expenses, which is a characteristic of low-income countries. Thirdly, health care financing systems in GCC countries are still being developed, as they finance most of their public services (including health care services) with revenue from natural resources (i.e. oil or gas). Although the GCC countries are examining different options for financing health care services, they have not yet identified or implemented any approaches to achieve this objective and are at the stage of searching and learning from one another's experiences. Additionally, some of their health care indicators are identifiable with those from below upper-middle income countries.

Furthermore, equity in access to health care has to be an objective in any health care service, including GCC countries. Under the law in most GCC countries, including Saudi Arabia, the government is obliged to provide free health care services to its citizens, whilst the employers are obliged to provide health care services to the expatriate employees. Therefore, the big challenge for GCC countries is how to devise a health insurance scheme that guarantees equitable access to health care for all residents whilst financing health care differently. If the CEBHI is a good model and proves to be an effective scheme that assists expatriates to increase access to medical care and increases the partnership with the private sector, then this model could be adapted by other GCC countries.

This chapter highlights the implications of the CEBHI from a financial point of view. In addition, it links how the place of study, other GCC countries and high & low income countries finance their healthcare services, and what the main similarities and differences are. The next chapter addresses the methods used to compare access to medical care between insured and uninsured expatriates.

4 Chapter 4: Methodologies for the Survey

4.1 Structure of the Chapter

This chapter highlights the different methodologies used in this thesis. The type of study used to achieve the thesis objectives will be explained and justification provided for use of the survey method, the place of study and why it was selected.

Different issues associated with sampling methods have been determined, such as choosing an appropriate sample size, sampling development options and a full discussion of each option is detailed in this chapter. The development of the survey questionnaire is also described, as reference to different sources, including an explanation of the main languages used for the questionnaire.

Before this study was commenced, a pilot study was performed. The outcome of the pilot study is detailed in the pilot study section. Selection criteria for the Interviewers and their training schedules are explained, followed by a discussion of the time span of data collection, the measures for evaluating Interviewers' performances and the steps involved in quality assurance. The questionnaire is divided into two sub-sections, workplace characteristics and personal characteristics. The dependent & independent variables in this study will be explained at the end of the chapter, followed by how the main variables were measured and analysed. At the end of the chapter, the conceptual framework used to achieve the study objectives is highlighted.

4.2 Research Approach

A cross-sectional quantitative research technique was used to gather information to achieve the research objectives. What follows is further explanation of the reasons for selecting the particular survey instrument, the population-based survey, to achieve the thesis objectives.

Population-Based Surveys

The traditional way of measuring access to medical care has been via population-based surveys (Gold and Edan, 1998). Saudi Arabia does not have a national survey that provides insight into those individuals outside of the healthcare system, particularly vulnerable groups such as low-income individuals and minorities. The ability to monitor whether an individual can enter and access the health system is very important, as it captures information about what happens once they are in the system and about the outcome of the level and quality of care received.

In general, the survey questioned individuals regarding their use of health services. The focus of the survey was typically regarding barriers, such as a lack of health insurance coverage or their proximity to providers that may affect accessibility to the system and obtain care (Gold, 2004, Gold and Stevens, 1998b).

The survey method has many advantages that support this thesis to achieve some of its objectives:

Firstly, the survey-based approach has the advantage of standardizing data collection. This standardization is important, particularly for comparing different groups, as is the case with this study.

Secondly, the survey may be the one of the essential ways to compare diverse subsets of individuals employed in different organizations (Gold and Stevens, 1998a). In addition, a population-based survey is one of the best alternatives for capturing the most vulnerable people, including certain racial/ethnic minorities (Gold and Edan, 1998).

Thirdly, the population-based survey can be useful to identify or quantify a problem, when comparing across nationals (Johnson and Dionna, 2008).

Fourthly, it provides researchers and policy makers information about access of healthcare services (Eden, 1998).

Based on the above, a quantitative method has been used to achieve the research objectives. Traditionally, qualitative methods are used when understanding the influence of different beliefs and attitudes on access to medical care. However, since there is no pre-existing knowledge regarding expatriate access to medical care, we tried to quantify the access problem by using a quantitative research method, as recommended by Johnson and Diona (2008). Once the factors influencing access to medical care are quantified through a survey-based approach, qualitative research methods could be used to investigate deeper into these factors (whether personal or workplace). In addition, the main objective of this study was to study the influence of health insurance on access to medical care, considering personal and workplace characteristics, as illustrated in the study's final stage of the conceptual framework Figure 2.9 - page 44. Therefore, a quantitative method via logistic regression was selected to mediate all these variables as per the developed framework (further details in section 4.13). However, not using qualitative methods has been considered as one of the study's limitations (see section 7.3, page 154), and this research method could be used for future study regarding the consequences of the implications of insurance for specific sub-sets of expatriate groups, as a recommended future study (see section 8.4, chapter 8 - page 202).

4.3 Target Population

4.3.1 Selection Place of the Study

Riyadh City was selected as the place of study, because the Riyadh region contains more than one-third of the expatriate population and one-fourth of the Saudi population (Ministry of Labour, 2009a). In addition, expatriate workers in Riyadh represent a large percentage of Saudi Arabia's expatriate population, in terms of their personal and workplace characteristics (further details provided in Chapter 5, Section 5.4.1- page 131).

4.3.2 Individuals

Male expatriates who work in the private sector are the target population. Female expatriates and children were excluded from the sample because men dominate the expatriate workforce in the private sector (98.30% of all expatriates in the private sector). In addition, when the study was conducted, not all expatriate dependents were included in the CEBHI scheme (see Table 1.1, Chapter 1, page 3).

4.4 Sampling

4.4.1 Sample Size

The most important objective of this study is to estimate the percentage of male expatriate employees in the private sector having access to medical care, following implementation of the compulsory insurance policy. Prior to the study being conducted, there were no published reports available regarding the percentage of male expatriates having access to medical care. However, after a personal communication with the Secretary General for the Council of Cooperative Health Insurance, we were able to identify that approximately 70% of male expatriate employees now has access to appropriate medical care as a result of implementation of the new policy (Al-Sharif, 2009). We can estimate this percentage with an accuracy of within 2.35% with 95% confidence, 1,460 employees were required for the survey. As cluster sampling was employed, the 1,460 employees were multiplied by the design effect, which is generally taken to be 2, and therefore the sample size was 2,920 employees. The calculation was done in Epi-Info 3.5.1. However, a multi stage stratified cluster sampling technique was used for the employee population, and therefore the sample size increased to 3,455 in order to have enough representation from all economic sectors (further details in the next section).

Participant businesses/companies were identified from the Ministry of Labour's database and were stratified based on economic sector³³, company size, and number of employees (more details within sampling development options). Based on their size and economic sector, companies were randomly selected from the database by systematic random sampling. During random sampling, which was done in SPSS software, companies' names and any related information were concealed and the means of identification was the company's code number, known only to the manager of the Statistics Department at the Ministry of Labour.

4.4.2 Sampling Options

In Table 4.1 below, three different data collection options were considered in order to achieve thesis objectives.

Table 4.1: Sampling Options, with Advantages and Disadvantages of Each Option

Sampling Option	Advantages	Disadvantages
1.) Geographical home locations	Catching expatriates who were away from work because of sickness.	There is no database that locates expatriate living areas.
	Expatriates can talk freely about their participation in a natural, free environment	Very difficult to capture expatriates alone as they live in the same neighbourhoods as the citizens.
	Away from work environment pressure	Expatriates work long hours, which makes it difficult to reach them even during weekends. This approach is impossible in a large city like Riyadh.
2.) Gathering areas, where most expatriates meet mainly during weekends	Easy to conduct	Might miss the population of the expatriates who do not come to these gathering areas for different reasons
	Expatriates will likely feel they have freedom of speech	Expatriate gathering areas are dedicated for very specific nationalities, therefore difficult to catch other nationalities.

³³ The economic sectors have been defined in table 4.4 based on International Standard Industrial Classification of Economic Activities (ISIC) as will be illustrated in section 4.10

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Sampling Option	Advantages	Disadvantages
3.) Expatriate employees' workplaces	This approach ensures fair representation of all expatriates considering their company's size, and economics sector	Sick workers cannot be captured by this method since they are away from work.
	This method guarantees sample representation regardless of the worker's job characteristics	Refusal of both employers and employees to conduct the interview during working hours as workers have other things to do.
	Taking a proportional sample from all expatriates according to their economic sector and company size ensures accurate data analysis for some of the study main objectives (i.e. based on job characteristics)	Fears of recrimination against participants from employers, may lead to misleading answers.
	This approach is the easiest way to target the expatriate population considering their long working hours.	
	This method helps measure some of the thesis objectives such as employers' characteristics (companies' size and economic sector).	

After thorough evaluation of the different sampling methods, the third option was selected as it was much more advantageous than the others (per Table 4.1). Thus, the survey forms were distributed to workers in their workplace after obtaining approval of the company owner and/or General Director of the company.

To collect data from the employee within the workplace, we anticipated some difficulties. Table 4.2 below summarizes the expected difficulties and ways to overcome them.

Table 4.2: Expected difficulties to collect data from the work place and ways to overcome them

Difficulty	Solution
Sick workers cannot be captured by this	Some interviews were conducted at workers'

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Difficulty	Solution
method since they are unlikely to be at work.	accommodation.
Refusal of either employers or employees to participate in the interview during working hours due to work commitments.	Interviews were conducted during break times and during bus trips to and from the workplace. Interviews were scheduled ahead of time at the employee's convenience. This kind of arrangement was essential for large employers. However, this arrangement was difficult in some of the economic sectors, particularly Construction. Therefore, some interviews were conducted in workers' accommodation due to an unfavourable workplace setting.
Fears of recrimination against participants from their employers may lead to misleading answers.	The credibility of the research sponsor was emphasized during conduction of the study, including confidentiality of the participants' opinions and their rights (as stated clearly in the consent form).

It was also expected that company directors and employees would be hesitant to participate in the survey. In order to encourage and give employers and workers confidence in their participation and to reduce participants' anxiety when answering the questionnaires, the following steps were taken, as outlined in Table 4.3 below:

Table 4.3: Actions Taken to Increase Employer and Employee Confidence in the Impartiality of the Research

Employers	Employees
Official letters and identification cards from the King Abdullah International Medical Research Centre (KAIMRC) (research sponsor) were provided to promote confidence that the study was official and the employers' contributions would be for research purposes only.	Official letters and identification cards from the KAIMRC (research sponsor) were provided to provide confidence that the study was official and employees' contributions would be for research purposes only.

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Employers	Employees
Due approval from the company owner and/or General Director was sought prior to communicating with employees.	Emphasis on confidentiality of the participants' identity, that answers and any related information would not be announced or linked to the participants, even to their employers. They were also notified of their right to withdraw their participation at any time.
Emphasis on the confidentiality of the participants' identity, that answers and any related information would not be published or linked to the participants.	Research Assistants administering the survey were selected from the same dominant nationalities and languages of the private sector employees, to ensure that participants understood the survey in their mother language.

Sampling Development Options:

How many individuals must be selected from each company?

If a large company is selected (e.g. a company with more than 3,000 workers), how many employees must be selected from this company to be representative? Two approaches were considered:

Firstly, we could select large samples from each company. This method has the advantage of covering different workers with different positions or responsibilities, i.e. managers, technicians, labourers. However, this method restricts the number of companies selected from each economic sector and restricts the variation in company sizes. For example, if a large sample was selected from the mining sector, only one large company might be chosen. Furthermore, this approach might minimize the selection of companies of other sizes such as a sample from companies with 1-9 employees.

Secondly, to select a limited number of workers and increase the number of companies in the study. Since the cost of health insurance is borne by employers and not the workers, studying many different companies is more valuable than selecting more workers in each company. In addition, since health insurance is linked to renewal of the Iqama residency permit for expatriate workers, the behaviour of the employers with regards to health insurance is vital to the study objectives. Therefore, the minimum number was fixed at 30 employee samples from each company. If the company had less than 30 employees, another company with the correct sample size would be chosen to complete the 30 samples.

Based on the company size, two actions were considered: 1) a company with less than 30 employees, all employees were selected as study participants, and another company selected to complete the required minimum number of employees; 2) a company with more than 30 employees, a maximum of 30 employees was randomly selected from that company's database.

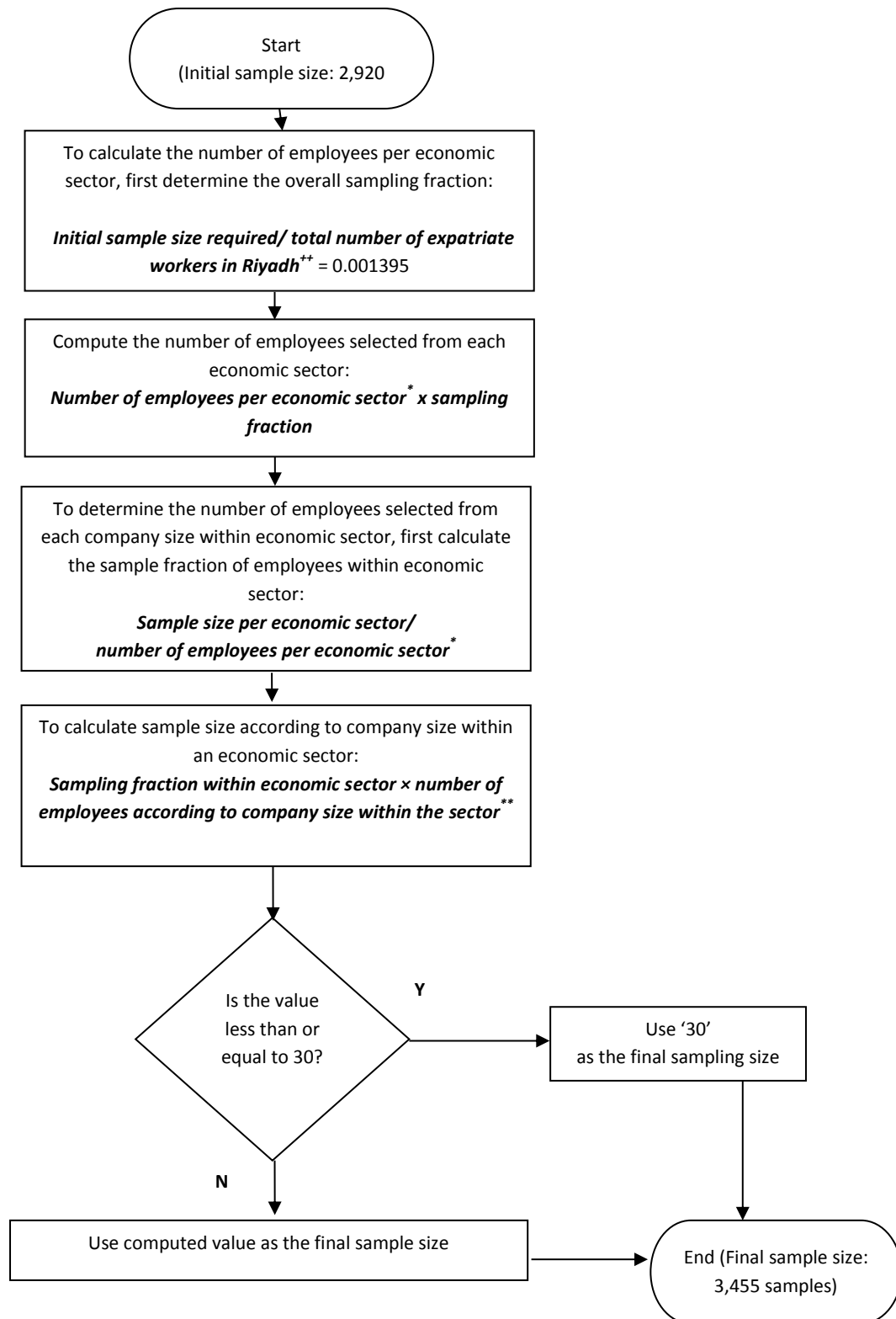
How many employees must be included in the study?

Figure 4.1 illustrates how the number of employees was calculated. The initial sample size was calculated at 2,920 employees. The samples are proportionately selected and distributed to all economic sectors and company size, accordingly. To do this, the overall sampling fraction was determined by dividing the initial sample size required by the total number of expatriate workers in Riyadh ($2,920/2,093,099=0.001395$). The overall sampling fraction was then multiplied with the number of employees in each economic sector in order to achieve the number of employees from that economic sector. For example in the

agriculture sector the total number of employees is 19,070. The sample size from the agriculture sector that is proportional to the total number of employees in this sector would therefore be equal to $(19,070 \times 0.001395 = 26.594695)$. The product is then rounded off to the nearest absolute value.

Within the economic sector, the number of employees was also calculated proportionately in order to calculate the number of employees per company size within that sector. To do this, the sampling fraction within the economic sector was calculated by dividing the sample size in that economic sector by the number of employees in that sector. For example in the agriculture sector the sample size, 27, was divided by 19,070 to compute the sampling fraction within the agriculture sector. Then the sample size according to company size within an economic sector was calculated by multiplying the sampling fraction within the economic sector by the number of employees according to company size within the sector. The data for the number of employees according to company size within an economic sector is extracted from the Ministry of Labour database. The final sample size from each company by economic sector is shown in Figure 4.1 overleaf.

Figure 4.1: Calculating the number of samples for the study



++ - 2,093,099 based from Ministry of Labour database

* - for example, Agriculture sector: 19070 employees

** - based from Ministry of Labour database

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Table 4.4: Calculating the number of Samples/Individuals for the Study

Economic Sector	Number of employees per sector	Overall sampling fraction	Sample from each Economic Sector	Absolute Value (Sample from each Economic Sector)	Sampling fraction within Economic Sector	Company Size	Number of employees per company size within Economic Sector	Sample	Final Sample
1. Agriculture	19070	0.0013946	26.594695	27	0.001415836	<10	4422	6.2606676	30
						10-24	1363	1.9297354	30
						25-49	1322	1.8716876	30
						>=50	11963	16.9372154	30
2. Mining	2601	0.0013946	3.62731	4	0.00153787	<10	125	0.0015379	30
						10-24	179	0.0015379	30
						25-49	106	0.0015379	30
						>=50	2191	0.0015379	30
3. Manufacture	187762	0.0013946	261.84967	262	0.001395384	<10	35130	49.020402	50
						10-24	21154	29.5182916	30
						25-49	22550	31.46627	30
						>=50	108928	151.998131	152
4. Electricity	1401	0.0013946	1.9538106	2	0.001427552	<10	70	0.099932	30
						10-24	34	0.0485384	30
						25-49	177	0.2526852	30
						>=50	1120	1.598912	30
5. Construction	971159	0.0013946	1354.3617	1354	0.00139421	<10	49765	69.3828607	70
						10-24	51920	72.3873832	72
						25-49	64747	90.2709149	90
						>=50	804727	1121.95843	1121
6. Trade	541829	0.0013946	755.62544	756	0.001395274	<10	88902	124.042649	124
						10-24	72138	100.652276	101
						25-49	63390	88.4464189	89
						>=50	317399	442.858572	443
7. Transport	35137	0.0013946	49.001458	49	0.001394541	<10	8116	11.3180948	30
						10-24	1746	2.43486859	30

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Economic Sector	Number of employees per sector	Overall sampling fraction	Sample from each Economic Sector	Absolute Value (Sample from each Economic Sector)	Sampling fraction within Economic Sector	Company Size	Number of employees per company size within Economic Sector	Sample	Final Sample
						25-49	2745	3.82801505	30
						>=50	22530	31.4190087	31
8. Finance	60464	0.0013946	84.322058	84	0.001389256	<10	5108	7.09631965	30
						10-24	4532	6.29610819	30
						25-49	4786	6.64897922	30
						>=50	46038	63.9585677	64
9. Personnel services	230582	0.0013946	321.56571	321	0.001392129	<10	40979	57.0480543	57
						10-24	19418	27.0323609	30
						25-49	18349	25.544175	30
						>=50	151836	211.375299	211
10. Others	43094	0.0013946	60.098154	60	0.001392305	<10	8128	11.316655	30
						10-24	8049	11.2066629	30
						25-49	6956	9.68487358	30
						>=50	19961	27.7918001	30
Total	2,093,099	0.0013946		2,920					3,455

Database Sources Selection

There were three main databases available for construction of the sampling frame. The Ministry of Labour database was selected because its database is updated every two years, whereas the Ministry of Commerce' database is only updated every five years. The Organization of Social Insurance (GOSI) also has a database for all companies that register with them only and it is updated annually. However, not all companies in the private sector have registered with GOSI (Al-Wehibi, 2009). Therefore, the Ministry of Labour's database was selected as its database updating cycle is shorter than that of the Ministry of Commerce, and registration to its database is compulsory for all private sector companies. After categorizing the companies based on their size (less than or equal to 10 employees, from 11 employees to 24 employees, from more than 24 employees to 50 employees, and

more than 50 employees), Table 4.4 illustrates the categories of the companies based on their economic sector and size.

4.4.3 Inclusions and exclusions

1. All companies that provide healthcare oriented services such as hospitals, clinics (both medical and clinical or any healthcare professional clinics), optical shops and pharmacies were excluded. All insurance companies were excluded since the majority of insurance companies have health insurance as part of their business.
2. Female expatriates and children were excluded from the sample because men dominate the expatriate workforce in the private sector (98.30% of all expatriates in the private sector). If gender was included as one of the variables it would be very difficult to obtain a significant number of participants due to the small number of female employees. In addition, most of the females working in the private sector are from within the healthcare sector (which is excluded as mentioned in the first point).
3. Non-profit organizations and companies were excluded.
4. As a consequence of points 1 and 3 above, the economic sector number 9 (Personnel Services per Table 4.4) has been represented only by the education sector because all medical and non-profit sectors were eliminated³⁴.
5. Companies that did not provide either clear location directions or a telephone number were excluded.
6. Some expatriates have been classified either by their geographic locations such as Eritreans, or by their language of speaker such as Somalia (a member of League of Arab states), However, Turkish workers were classified as Asian workers because their income is similar to Asian workers.
7. The Ministry of Labour database was sometimes inaccurate, as it failed to classify all companies to their proper sector. In this case, these companies were excluded and another random selection was undertaken.
8. Some companies have more than one code in the Ministry of Labour database, or their head office is not located in Riyadh. During the random selection of companies, the branches of some companies were selected to represent that sector and that size. However, the numbers of workers do not represent the entire company's size but the branch size. Therefore, only the Riyadh branch was selected.

³⁴ According to ISIC classification, economic sector number 9 originally includes none profit companies, medical (hospitals, pharmaceutical companies.etc). the non-profit companies and medical companies

9. All expatriates insured for less than one year (because we asked about their access to medical care within the past year) were excluded so those expatriates might have reported their difficulties in accessing medical care when they were not insured.
10. All those who were not in Saudi Arabia prior to CEBHI were also excluded, because they had not had their medical expenses paid prior to CEBHI.

After the data collection, 177 samples were excluded due to incompleteness of survey responses. The actual sample size was 3,278 after collection of the data. The percentage of excluded samples was around 5% of the total sampled. Therefore, the overall response rate was around 95%. Based on these exclusion criteria, the final sample size was 3,278, illustrated in Figure 5.1, Chapter 5-page 125.

4.5 Questionnaire Development

4.5.1 Questionnaire Construction

A single questionnaire was designed for uninsured and insured expatriates. It included comparable sections on demographics, perception on health status, medical access, and the utilisation patterns of medical services (see Appendix 1, section 1.1). Different questions were asked of insured and uninsured persons regarding the responsibility for payment of healthcare expenses and health insurance premiums. The questionnaire was designed to ensure it answered the key objectives of this research. The questionnaire was translated into six dominant expatriate languages: Urdu, Hindi, Bengali, Malayalam, Arabic, Tagalog, and English.

To ensure the questionnaire would capture all relevant information, the questionnaire used for this thesis was developed and then adapted after reviewing different national resurveys implemented in the United States and other developing countries.

Chapter 4: Methodologies for the Survey

Table 4.5: Summary of National Surveys with Healthcare Coverage and Access Measures

Survey	Agency	Periodicity	Target Population	Most Recent Year of Data
Current Population Survey (CPS)	Census	Annual	Civilian, non-institutionalized U.S. Population	2007
Survey on Income and Program Participation (SIPP)	Census	Panel	Civilian, non-institutionalized U.S. Population	2004 (wave 1)
National Health Interview Survey (NHIS)	National Centre for Health Statistics	Annual	Civilian, non-institutionalized U.S. Population	2006
National Health and Nutrition Examining Survey (NHANES)	National Centre for Health Statistics	Periodic	Civilian, non-institutionalized U.S. Population	2005-06
National Survey on Children's Health (NSCH)	National Centre for Health Statistics	Periodic	U.S. children < 18 years	2003-04
National Survey of Family Growth (NSFG)	National Centre for Health Statistics	Periodic	U.S. population 15-44 years	2002
Behavioural Risk Factor Surveillance System (BRFSS)	Centre for Disease Control and Prevention	Annual	U.S. adults ≥ 18 years	2007
Medical Expenditure Panel Survey – Household Component (MEPS-HQ)	Agency for Healthcare Research and Quality	Panel	Civilian, non-institutionalized U.S. Population	2005

The questionnaire used for this study was adapted from the Medical Expenditure Panel Survey (MEPS)(AHRQ, 2009). MEPS is sponsored by the U.S Department of Health and Human Services (DHHS)/Agency for Healthcare Research and Quality (AHRQ) and the National Centre for Health Statistics (NCHS). The AHRQ is one of the Federal Agencies that developed a national survey as illustrated in Table 4.5.

One of the main advantages of the MEPS questionnaire is that it provides estimates of healthcare use, source of payment and insurance coverage (Cohen, 1997). These are the key variables in this study. The MEPS researches the relationship between individual characteristics and healthcare access and utilisation (Kenney et al., 2006). Its survey data was used to estimate the impact of changes in source of payment and insurance coverage (Johnson and Dionna, 2008). MEPS was also a solid base for this study's questionnaire because it is one of the most reliable questionnaires about access to medical care and it is particularly detailed (Johnson and Dionna, 2008). Furthermore, the MEPS questionnaire has been designed in a way that helps measure access easily. For example, in the question about access to medical care, the question was 'In the last 12 months, were you unable to get medical care, tests, or treatments you or a Doctor believed were necessary? (0=No / 1=Yes).' This question combined different issues in one question. This question asks about access, which includes seeing the right Physician, the right equipment (for a specific test like C.T scan or M.R.I), and not only the participant's opinion but also Doctor's opinion if the case required a Specialist. Furthermore, the MEPS question was designed to be conducted personally, which is the same as this study in terms of the manner of interviewing (i.e. not via telephone or mail, but the way the questionnaire is designed).

Personal communication with AHRQ provided more understanding of the reliability of their questionnaire and how it was analysed (see Appendix 1, section 1.2). Notably, the MEPS questionnaire is unsuitable for certain types of analysis such as research on rare conditions (Johnson and Dionna, 2008), but this is not relevant for the outcomes of this thesis. After reviewing all sections related to employees and employers (more than 49 sections) (AHRQ, 2009), the questionnaire was developed as per Appendix 1, section 1.1. Some questions were added to fit the circumstances of the study participants in Saudi Arabia. For example, two questions were asked about the age of participants (one was their 'official' age and the other, their real age) since expatriates may have avoided stating their actual age because some jobs have certain age requirements.

4.5.2 Questionnaire Languages

The questionnaire was translated into six different languages (Arabic, Hindi, Malayalam, Bengali, Tagalog, and Urdu), in addition to the English version. The questionnaire was translated into the Arabic language by the research Principal Investigator. The Arabic version was the dominant version since the majority of the research assistants were fluent in Arabic aside from their mother tongue. The top 10 Research Assistants (out of 25 applicants) were selected after they passed two stages, a personal interview followed by four days of training sessions.

The Research Assistants helped to translate the questionnaire into their own languages. The translations were also done by two different licensed translation offices to ensure accuracy of the translations. Some of the vocabulary was checked by professional staff members who were capable of speaking the language. Although the Research Assistants completed the questionnaire on behalf of the employees, the questionnaire was translated into six languages (as discussed previously) to increase participant confidence and secure their response in their own languages.

4.6 Pilot Study

Initially, the investigator tried to communicate with workers in the private sector. However, the top three nationalities (Bengali, Hindi, Pakistani) were neither Arabic nor English speakers. It was therefore extremely difficult to communicate with majority of the expatriates. However, due to the importance of the study for health policy makers in Saudi Arabia, the study was funded by a leading research centre in Saudi Arabia, the King Abdullah International Medical Research Centre (KAIMRC) and supported by a grant to hire Research Assistants, and therefore the grant assisted the writer in overcoming communication barriers.

During the pilot study, the investigator communicated with expatriates from a company with the assistance of a person speaking both Urdu and Bangladeshi. He was accepted and managed to communicate with the Surveyors much easier than the investigator who speaks Arabic and English. The questionnaire was tested. Modifications were made to some questions to increase understanding and acceptability by the participants, such as the question about income. Some expatriates refused to declare their income as an absolute value but preferred a range. The questionnaire was also tested by all Research Assistants before commencing delivery of the questionnaire. The initial pilot study was done in Arabic and English languages at Al Batha, a well-known gathering area of expatriates. People from a selection of randomly selected companies were interviewed in order to assist questionnaire acceptance from both employers and employees. The number of samples collected from the pilot study was 250. The consent form was revised to increase participant understanding. The title of the consent form was “consent form” and this was revised to “approval of participation consent form” because some participants misunderstood the title and their objectives, particularly when the consent form was translated into other languages (see Appendix 1, section 1.3).

4.7 Training of Interviewers

4.7.1 Selection of Interviewers

As part of the grant funding to hire Interviewers for this study, ten Interviewers were selected from different nationalities. Their role was to communicate with the employers and secure approval for their workers to participate in the study, and to ensure that the team of assistants conducted the interviews.

The Interviewers who administered the interviews and completed the questionnaires were not Saudis, but mother tongue speakers of the main languages of the private sector workers (Arabic, English, Bengali, Urdu, Hindi, Malayalam, and Tagalog). Initially it was expected that seven Interviewers would be required to cover the main languages of expatriates in the private sector. Due to the huge number of expatriates speaking either Bengali or Urdu, three additional expatriates were included who spoke these languages, resulting in a total of ten Interviewers being selected; eight for conducting interviews and two for quality assurance making sure that interviews were conducted (see Appendix 1, section 1.4 for the number of interviews per Interviewer).

The Interviewers were selected carefully to ensure their understanding of the questionnaire and their ability to communicate well with participants. The main selection criteria were as follows:

- His mother language was one of the main expatriate languages,
- He had a minimum of a Bachelor's degree (preferably in Linguistics),
- He spoke multiple languages (two of the Research Assistants spoke five languages).
In addition, some of the Research Assistants were selected based on their additional qualifications or experience such as translation of books from Arabic to their mother languages.
- He had a driving license (to ensure he could reach company locations in a short time and to avoid extra cost from a budget perspective).
- He had experience in critical translation (preferable). For example, work in a court as a translator.

Twenty-five (25) out of (55) people interviewed met the above-mentioned criteria, and a practical test was assigned to select the best 10. Each Interviewer had to go to the field and complete ten surveys, and 10 out of 25 best Interviewers were selected based on their ability to explain the survey and their understanding of the questionnaire.

4.7.2 Training for the Interviewers

To ensure uniform understanding of the project and its purpose, the following activities were devoted to training the Research Assistants:

Table 4.6: Training Activities for the Interviewers

Day	Activities
Days 1 and 2	Discussion regarding purpose of the study and survey, including survey procedures and questionnaire explanation.
Day 3	Discussion regarding company selection criteria with strict emphasis on confidentiality of data collection.
Day 4	Practice interview exercise and individual guidelines discussion. Each Interviewer was required to go to the field and complete ten surveys. Ten out of 25 interviewers were selected based on their ability to explain the survey and their clear understanding of the questionnaire.
Day 5	Interviewers' discussion regarding the company selection process, time management and communication with the employers

Weekly meetings were conducted with each of the Interviewers to address the main challenges they were facing and to learn about how to improve communication with participants. A further meeting was held with all Interviewers to learn from each other's experiences and how to improve communication with employers. On-going communication was open and regular (via mobile phone) if the Interviewers faced any difficulties.

4.8 Data Collection and Data Management

4.8.1 Data Collection Period

The data collection period was 22 May to 6 December, 2010.

The number of interviews completed per Interviewer was variable due to different languages and different times dedicated to the project. Some Research Assistants worked full time and took leave from their employer to support the project, whereas others worked for a limited number of hours per day.

4.8.2 Principal Investigator's Review of the Interviewers' Performance

During data collection, some participants were randomly selected to confirm their answers and ensure interviews were conducted well. The data was collated on a weekly basis and checked for completion. Once the data were collected, the investigator translated all participant answers to the question regarding their position in the company and occupation

groups, as will be discussed in section 4.10.1. The data was entered in SPSS format (version 17).

The completed surveys were stored in a secure location. Once the data were checked and completed, the data entry began, with double entries to minimize errors. Frequency analysis of all variables in the final data set was done and all outliers were reviewed by going back to the survey answers for clarification.

4.9 Quality Assurance

A pilot study was conducted after the sample size was determined. The purpose was to determine whether a change in methodology was necessary before the start of the full-scale study. Some participant responses were revisited by the principal investigator in case of doubt about the accuracy of recorded information. Elementary school education holders were asked questions verbally, and the Research Assistant team recorded the questions on their behalf, whenever it was convenient to the participant. Notes were made on a weekly basis whenever possible, as a reference point for decisions made regarding methods and sources of data collection. Logic checks were done to determine any contradictions in information gathered. Two interviewers were selected to do a check and ensure interviews were conducted and participants had answered the questions correctly.

The questionnaire was re-tested with the help of Interviewers to answer the following questions and concerns:

- Were the participants willing to answer the questions in the way they were intended?
- Whether the questionnaires were understood by different participants regardless of their education and spoken language (this exercise was undertaken during the pilot study as discussed).
- Are there any sensitive questions that participants find difficult to answer? (Some questions were modified, as mentioned previously).
- Did participants understand all of the questions?
- Was there enough space for participants to answer all questions?
- How long did it take for participants to answer all questions, considering the differences in the versions of the questionnaire languages?

In addition, all questionnaires with languages other than English were also translated by independent translators (licensed translation office), to ensure they had an identical meaning for quality assurance purposes.

Below is an elaboration of the study's main independent and dependent variables and how these were defined and analysed.

4.10 Study Independent Variables

As stated previously, the study's questionnaire was adapted from MEPS (AHRQ, 2009). The independent variables of the study were classified into workplace characteristic variables and personal characteristic variables. In addition, a detail of the study's main groups is illustrated afterwards.

4.10.1 Workplace Characteristics Variables

Workplace characteristic variables included the employer size, economic sector, job category, job education requirement, and the availability of a sick leave policy. These variables are the main workplace variables that influence access as illustrated in Chapter two. Below is an explanation of each of these variables:

- **Economic Sector**

The participant was asked the following question:

"What kind of business/industry does your company do?"

Economic sector/industry classification was based on the third revision of the International Standard Industrial Classification of All Economic Activities (ISIC) since this version is used by the Ministry of Labour in Saudi Arabia. The ISIC is a reference classification of productive activities internationally (United Nations, 2008b). The classification of ISIC has been used to standardize the collection and reporting of statistics (United Nations, 2008b). The companies have been classified into ten categories as illustrated in Table 4.4. The ten economic sector classifications are agriculture, mining, manufacturing, electricity, construction, trade, transportation, finance, personal services, and others.

This classification was used to enable easy comparison of the study's findings with studies from other countries. Furthermore, since the ISIC classification was comprehensive, it assisted us in ensuring that no sectors were missed. The ISIC (version 3.1) has been used to classify all companies in order to have a unified classification that is acceptable globally (United Nations, 2008a). Based on ISIC classification, the companies were classified after data collection.

The economic section was classified into agriculture, manufacturing, construction, trading and others. This classification was based on literature findings, that manufacturing jobs are more likely to include job-coverage (Fronstin, 2010, Glied et al., 2003); other study findings indicated that workers employed in agriculture are less likely to be insured (Hoffman 2004).

- **Position in the company**

Each participant in the study was asked this question:

“What is your position in your company?”

Based on their answer, the position of work in companies was classified according to Ministry of Labour classifications. This is similar to the International Standard Classification of Occupations (ISCO) issued in 1998 (Ministry of Labour, 2007b). However, there were a few changes. For example, in Saudi classification, services and selling have been classified into two categories, but in the international standard these were amalgamated. The software that was developed by the Ministry of Labour used to determine all positions in the study from two perspectives; job category and job education requirement as discussed next.

- Job Category: The job category groups were classified as managerial positions, specialist in profession, technical and humanitarian fields, technicians, occupations of support, basic engineering, and others. This classification was adopted because as stated in Chapter 2, workers in managerial and professional occupations are more likely to have better access to medical care, than those in non-professional working groups (Fronstin, 2010, Hansen, 2001).
- Job Education Requirement: refers to the skills and education required in a certain job (Ministry of Labour, 2007b). The educational requirements were classified into the following categories:
 - a. Specialists with University Education
 - b. Professionals with education higher than high school
 - c. Manual workers with less than high school education
 - d. Unskilled workers, usually with no education

This classification was very important because some expatriates have a high education level but their job skills or education requirements are very low. Since it is

a standardized approach, using this approach allowed any future study to compare the outcome nationally or internationally.

- **Employer Size**

The following question was asked:

“About how many employees are there in your company/organization?”

After the participant(s) provided the information and identified a particular number, the companies were classified as follows:

1. Less than 10 employees
2. between 10 and 24 employers
3. between 25 and 50 employees
4. More than 50 employees

- **Availability of Sick Leave**

The question was asked as following:

“can you take paid sick leave if you have to visit a doctor?” The answer to this question being either yes, no, or I do not know.

4.10.2 Personal Characteristics Variables

The behaviour model developed by Andersen was used, as discussed in Chapter 2, to determine the main personal independent variables for the analysis.

- **Socio-economic Factors**

The socio-economic measures included in the questionnaire are: the worker's date of birth, nationality, highest education attainment (illiterate, can read and write, completed elementary, completed high school, completed a diploma, a Bachelor's degree, a Master's degree, or Doctoral studies), marital status (single and married but family outside of Saudi Arabia, married and family within Saudi Arabia); monthly income (less than 600S.R, between 600 - 1000S.R, between 1001 - 2000S.R, between 2001 - 3500S.R, between 3501 - 4500 S.R, between 4501 - 6000 S.R, between 6001 - 7500S.R, between 7501 - 9000 S.R, more than 9000 S.R). However, during the analysis, the expatriate income was reclassified to be (less than 2000 S.R., between 20001-4500 S.R., 45001-6000 S.R., 6001 - 9000 S.R. and above 9000 S.R). this reclassification was done because anyone earning less than 2000S.R is considered a low income, as the government provides unemployed

nationals with compensation of 2,000 S.R per month as discussed in Chapter 1, section 1.3.6.

Three other questions were included to request the reported comfort of the participant conversing in Arabic or English and as a means of identifying their native language, because nationality does not always reflect the mother language of an expatriate. These questions have been adapted from MEPS and were as follows:

1. *Are you comfortable conversing in English? (0=No 1=Yes)*
2. *Are you comfortable conversing in Arabic? (0=No 1=Yes)*
3. *What is your native language? (1=Arabic 2=Urdu 3=Hindi 4=Malayalam 5=Bengali 6=Tagalog 7=English 8=Other:____)*

- **Health Status**

General questions assessing health status concern self-reported health. The question asks the respondent to rate his general health as being: excellent, very good, good, fair, or poor. During the analysis, the responses were categorised into three groups: below average or poor health, good health, excellent, and very good.

Full details of the result of the descriptive analysis are highlighted in Table 5.2, Chapter 5 - page 127.

4.10.3 The Four study groups determinations

The four study groups were classified based on their insurance status (insurance or uninsured) and the employer payment to medical care expenses (pay or not pay) before and after CEBHI, as illustrated in Figure 2.4, Chapter 2 - page 32. Therefore, we have a summary of four study groups of expatriates: A) not insured not paid, B) insured not paid, C) not insured paid, and D) insured paid (definition of the four study groups will be highlighted in Table 5.1, Chapter 5). Six questions were asked to determine the health insurance status (two questions) and employer payment to medical care before and after CEBHI (Four questions).

- Two questions were asked to determine the insurance status of the employee:

Have you had Health insurance for at least 12 months continuously? (0=No 1=Yes)

If the answer to the above was no, then a follow up question was asked:

1. What is the reason you do not have health insurance or have not been continuously insured?
(Choose one)

1=I have been insured for only
_____ months

2=I am sponsored by different employer

3=My visa was for a different job

4=I have not renewed my Iqama

5=My health insurance policy was valid for less
than 1 year

6=Health insurance was meant to renew the Iqama only

7=Other: _____

As illustrated previously in section 4.4.3, those having health insurance for less than 12 months as well as those stating their health insurance policy had been valid for less than 1 year or they had been insured for a limited number of months but less than 12 months, were excluded from the study (if answering 1 or 5), otherwise, they were considered uninsured.

Four questions were asked to determine employee status in regard to the responsibility of payment to medical care; two questions for insured and two for uninsured workers. Employer status in regard to the medical care expenses payment was referred to throughout this thesis as Previous Method of Paying Healthcare (PMPHC).

1) The two questions were asked for uninsured workers:

Who usually pays for your healthcare expenses? (1=myself 2=employer 3=share between me and my employer 4=others:___)

A follow up question was asked if they answered myself or others³⁵

Has your employer reimbursed you, at least partially, for the out of pocket amount you paid for your healthcare expenses (0=No 1=Yes)

2) The two questions were asked for insured workers:

Before CEBHI when you did not have health insurance, who usually paid for your health care? (1=myself 2= my employer 3=health insurance company through my employer, 4=other :_____)

A follow up question was asked in the case where a participant had paid for medical care expenses or others (no one said others):

³⁵ no one said others

In a case you did not have health insurance before CEBHI, did your employer reimburse you at least partially, for the out-of-pocket amount you paid for your healthcare expenses (0=No 1=Yes)

For 1 & 2 above, those clearly answering the first question (Myself and also answered NO for the follow up question) meant they had paid for their medical care expenses. However, if they answered the first question (Myself, but answered the follow up question Yes, that meant the employee had paid for medical care, but the employers would reimburse the medical care expenses at least partially, so this group considered their employer paid for employee medical care expense.

4.11 Study Dependent Variable: How much has it been measured in this Study?

The dependent variable for this study is access to medical care. Three measures of access to medical care have been used, namely access 1, access 2 and access 3 as explained in the following sub sections.

4.11.1 Access to Usual Medical Care Setting (Access 1)

One of the questions in the questionnaire was:

“Is there a particular Doctor's office, clinic, health centre or other place that you usually go if you are sick or need advice about your health? (0=No 1=Yes 2=More than one place)”

4.11.2 Inability to Access Medical Services (Access 2)

One of the questions in the questionnaire was:

“In the last 12 months, were you unable to get medical care, tests, or treatments you or a Doctor believed were necessary? (0=No 1=Yes)”

The follow up question in case the answer to the above question was "yes":

*What was the **main reason** you were **unable to** get medical care, tests, or treatments? (Choose one)*

1 = money

2 = Provider (i.e. hospital) refused to accept insurance plan

3 = Co-payment was high

4 = Insurance company would not approve, cover or pay for care

5 = Problem related to the transportation (took too long to go to provider or an inability to pay for transportation

6 = Poor quality of service (long waiting time, inappropriate appointment, other

unsatisfactory procedure)

7 = Poor attitude of healthcare provider

8 = Different language

9 = No time off work (could not get permission)

10 = Other _____

4.11.3 Utilisation of Medical Care (Access 3)

One of the questions in the questionnaire was:

“How long has it been since you went to a Doctor or clinic to get care for an illness or injury?”

1=Never

2=Less than or equal to 6 months

3= Between 6 months and one year

4= More than or equal to one year but less than 2 years

5= More than or equal to 2 years

4.12 How was the Analysis Selected and Performed?

Three access measures are the commonly used measures of access problems. The questions listed above provide information about access to a regular provider “Access 1”, perceived needs “Access 2”, and actual use of medical care “Access 3” (Hargraves and Hadley, 2003). Below are explanations of each access measure.

4.12.1 Access to Usual Medical Care Setting (Access 1)

For this variable, the MEPS measure was utilised. This measure identifies those who answered “Yes” or “more than one place” for those who have access to healthcare setting whereas those who answered “no” do not have access to any healthcare setting or use emergency rooms as a usual medical care setting.

4.12.2 Inability to Access Medical Services (Access 2)

This question was also from the MEPS survey. Those who responded “no” were unable to access medical care in the past 12 months or did not have any legitimate reason for not availing medical care. Those who responded “Yes” were asked a follow up question about the reason why they were unable to access medical care. If they stated one of the legitimate reasons mentioned in the questionnaire (refusal of health insurance company, low quality of care, etc.) or another legitimate reason as mentioned in the follow up question, then they were classified as having a problem with access to medical care. However, if the reason was illegitimate, such as “laziness”, the answer was considered as representing no access

problem (Hargraves and Hadley, 2003). This was a very important step for carefully filtering those who had a real access problem.

4.12.3. Utilisation of Medical Care (Access 3)

The Access 3 measure was also used by a binary variable (1=access and 0=no access). Individuals were considered not to have utilised medical care services if *they did not visit the Doctor at all* or if they stated that *it was more than one year since their last visit to the Doctor*. On the other hand, the individuals who utilised healthcare services are those who visited a Doctor within the last year.

4.13 Statistical Analysis

Descriptive statistics was used to summarize all variables. Frequencies and percentages were calculated for categorical variables and mean and standard deviation was calculated for quantitative variables.

The access to medical care is the main dependent variable (measured through Access 1, Access 2, and Access 3). It is a binary variable. The group is one of the dependent variables with four levels. Initially, the four study groups were determined according to insurance status and the methods of payment used to access medical care before CEBHI, as discussed in Chapter 2, sections 2.6 and 2.7. Definitions of the four study groups and their representation within the study sample are elaborated in Table 5.1, Chapter 5. There are other independent variables identified, based on either workplace or personal characteristics, as illustrated in Figure 4.2- page 122.

The variable 'group' is the main independent variable. The association between group and the three access measures variables (Access 1, Access 2, and Access 3) are tested using Chi-square. Since the variable 'group' was found to be significantly associated with access, multiple comparisons using Bonferroni correction were used to determine which groups were responsible for the significant difference and subsequently, which groups have better access to medical care. The Bonferroni correction is used to adjust the p-values resulting from these multiple comparisons to protect against II error.

Univariate analysis was used to compare association of the three access measures (Access1, Access 2, and Access 3) with all other categorical independent variables (personal and workplace characteristics) using the Chi square test (see Appendix 2). For all nominal categorical tables, a reference group was chosen as illustrated in relevant tables - Chapter 6

(see tables in sections 6.5, 6.6, 6.7 and 6.9) For example the reference category for the variable 'group' was Group A (not insured, not paid).

Since one of the study objectives was to measure the impact of health insurance on access to medical care adjusted for expatriate personal and workplace characteristic variables, multiple logistic regression was used to achieve this objective. The measure of association in the logistic regression was the odds ratio and its 95% confidence interval.

The method used to enter the independent variable into the multiple logistic regressions is called Block or hierarchical logistic regression, in which variables are entered in blocks. The first level of hierarchy (or block) is health insurance and PMPHC. The second level is workplace characteristics. The third level is personal characteristics. Figure 4.2 - page 122 presents the simplified conceptual framework for access to medical care, which is used to guide the analysis. The conceptual framework has been used as a guide for multivariate techniques and assists in interpretation of the results (Victora, Huttly et al. 1997). Table 4.7 presents the summary of steps in the analysis of the effect of health insurance and PMPHC, workplace and personal characteristics:

- Model 1 represents the overall effect of insurance/payment of medical expenses (PMPHC). This model excludes the personal and workplace characteristics.
- Model 2 represents the second step of the analysis. Workplace characteristics were added and their effects assessed in the presence of insurance/payment of medical expenses (PMPHC), which was then adjusted for. The influence of workplace characteristics is obtained from this model.
- Model 3 represents the effect of insurance/payment of medical expenses (PMPHC) and adjusted for workplace and personal characteristics.

The adjusted odds ratio and their 95% confidence interval obtained from the logistic regression analyses are presented graphically using the Forest plot, which helps to explain in simple terms, the influence of health insurance on access to medical care adjusted for workplace and personal characteristics, and the results taken from those (see Chapter 7 and Appendix 3). The Forest plot displays the results of each factor's influence on access to medical care as a horizontal line, representing the confidence interval (CI 95%), whereas the dot on the line represents the odds ratio. The Forest plot was used as it is an easy method to understand the influence of insurance on different access measures (Access 1, 2, and 3), in addition to assessing the influence of workplace and personal characteristics.

Chapter 4: Methodologies for the Survey

Throughout all analysis (with the exception of the Bonferroni adjustment), a p-value of less than 0.05 was considered significant. All statistical analysis was carried out using SPSS (version17) for Windows.

This chapter highlights the methods used to achieve study objectives, including sampling size, place of study and sampling methods. In addition, it elaborates on both the study's main independent and dependent variables and the conceptual framework used to achieve the study objectives.

The following chapter presents the main study findings, including study group representation as well as representation of the place of study and the country.

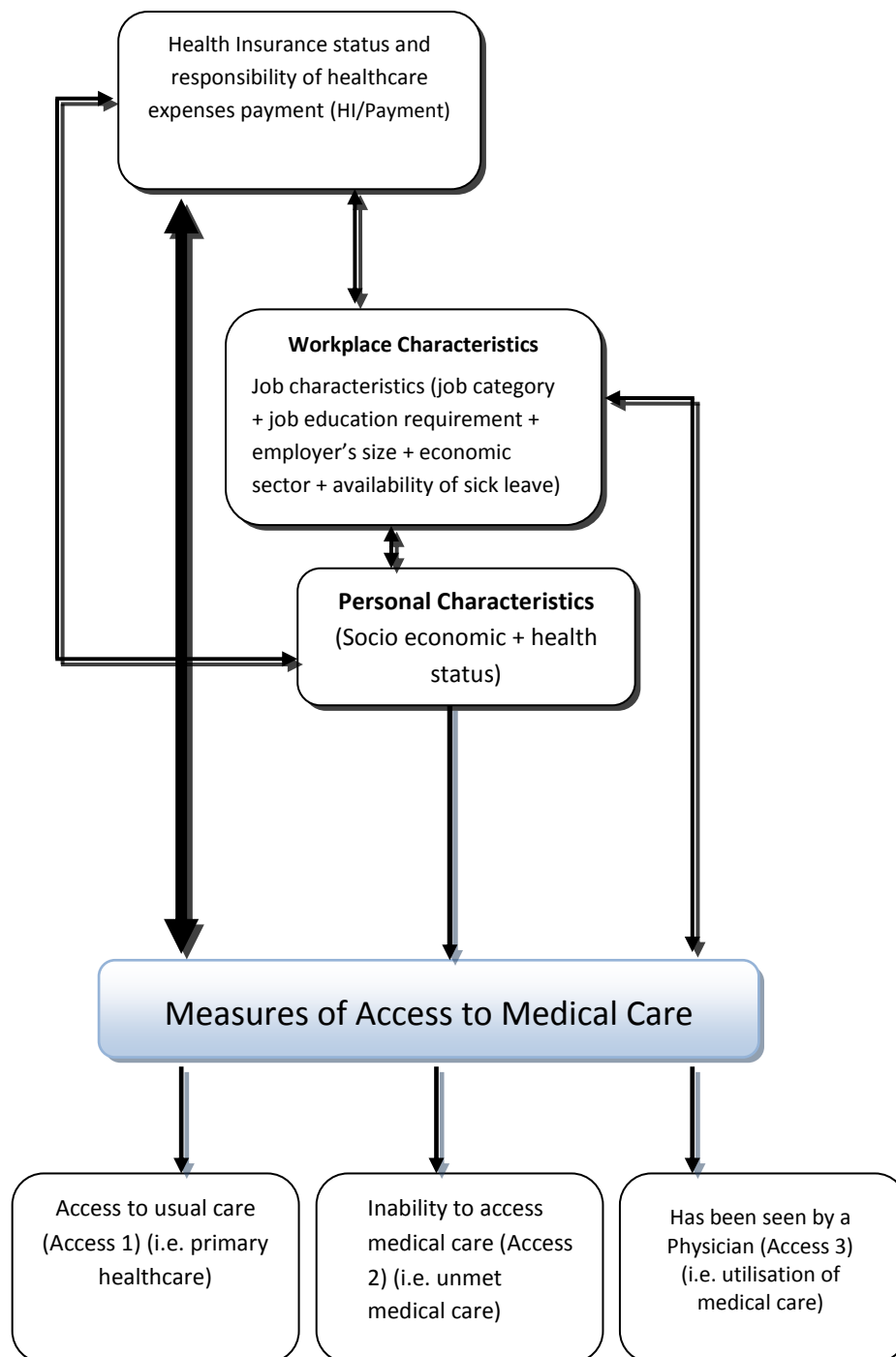
Table 4.7: Summary of Steps in the Hierarchical Logistic Regression of the Influence of Health Insurance/payment, Workplace Characteristics and Personal Characteristics on Access to Medical Care

Model	Equation (explanatory variables)	Interpretation
1	Health insurance and PMPHC (Group A-D)	Overall crude effect of (insurance/payment of medical expenses); not adjusted for workplace and personal characteristics.
2	Health insurance and PMPHC and workplace characteristics	Effect of insurance adjusted for workplace characteristics. The effect of workplace characteristics adjusted for insurance/payment of medical expenses is also available from this analysis and presented in the Appendix 3.1 and 3.3 ³⁶
3	Health insurance and PMPHC and workplace characteristics and personal characteristics	Effect of insurance adjusted for workplace and personal characteristics ³⁷ . The effect of workplace characteristics adjusted for insurance/payment of medical expenses and personal characteristics is also available in Appendix 3.3. The effect of personal characteristics adjusted for insurance/payment of medical expenses and workplace characteristics is available in Appendix 3.2).

³⁶ Victora et al. refer to this as the effect of insurance/payment not mediated through workplace characteristics

³⁷ Victora et al. refer to this as the effect of health insurance/payment not mediated through workplace or personal characteristics

Figure 4.2: Simplified Conceptual Hierarchical Framework for Access to Medical Care



Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

5 Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

5.1 Structure of the Chapter

This chapter highlights the justification for assembling the samples into four groups and provides a comparison of the personal and workplace characteristics of the study groups in relation to their access to medical care. In addition, the percentage composition of each group against the total sample size will be presented, according to their CEBHI coverage status and responsibility of payment before and after CEBHI.

At the end of this chapter, two comparisons of the characteristics of expatriates are discussed. The first is the comparison between personal and workplace characteristics of the study sample size and the personal and workplace characteristics of the expatriate worker population in Riyadh City; this is to assess the representativeness of the study sample size against the total expatriate population in Riyadh City. The second comparison is between the characteristics of the expatriate population in Riyadh City and the characteristics of expatriate workers in Saudi Arabia as a nation. This is done in order to determine the suitability and appropriateness of selecting Riyadh City as the place for this study, and whether the expatriate population in Riyadh City accurately represents the expatriate worker population of Saudi Arabia. These two comparisons are essential to determine the extent of the generalizations that can be drawn from this study and its implications for expatriate workers in Saudi Arabia.

5.2 Method

Review of definitions and composition of the four groups (refer to Table 5.1) with inclusion of the number of participants in each group (N=3,278) and comparison of the groups according to their respective personal and workplace characteristics, as a means of identifying important differences for level of analyses. Therefore, the method in this chapter is to review the definitions and composition of the four groups based on their personal and workplace characteristics to analysis the gap differences.

5.3 Justification for Comparing the Four Study Groups

In Chapter 2, sections 2.6 and 2.7, the different ways expatriate employees access medical care was discussed, as well as the different ways that employers paid for medical care expenses of their expatriate employees before and after CEBHI.

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

This thesis aims to determine whether CEBHI has increased access to medical care for expatriates, especially for those groups whose employers did not pay for medical care expenses prior to CEBHI. This comparison amongst groups is very important for assessing the extent of the influence of CEBHI on accessing medical care for all expatriates. Initially, their personal and workplace characteristics are compared, and then how these characteristics influence access to medical care will be reviewed.

Figure 5.1 illustrates the study findings. The percentage of employers who paid for the healthcare expenses of their employees before CEBHI was 62.7%. After CEBHI, 71.8% of those expatriate workers were insured (Group D), but there are 28.2% of expatriate workers do not, for whatever reason, have the CEBHI insurance but nonetheless their employers pay for their healthcare expenses (Group C).

On the other hand, 37.3% of the study sample did not receive medical care expenses from their employer prior to CEBHI. However, since CEBHI, 65% have been insured (Group B). 35% remain uninsured (Group A). Table 5.1 provides an illustration of each group and its respective percentage composition.

Before comparing access to medical care, it is important to check for similarities between personal and workplace characteristics, as a means of assessing if the difference is attributed to these characteristics or to health insurance and previous payment methods

Table 5.2 indicates there is a significant difference amongst the four groups ($p < 0.05$) in their personal and workplace characteristics. However, this difference was attributed to the large sample size (3,278 participants), and therefore, any difference amongst the four groups could be shown as significant. In the other words, this change is not actual but rather due to the huge sample size, and any difference in the characteristics amongst the four groups, could be highlighted as significant.

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

Figure 5.1: Expatriate Status in regard to Medical Care Expenses Payment Before and After CEBHI

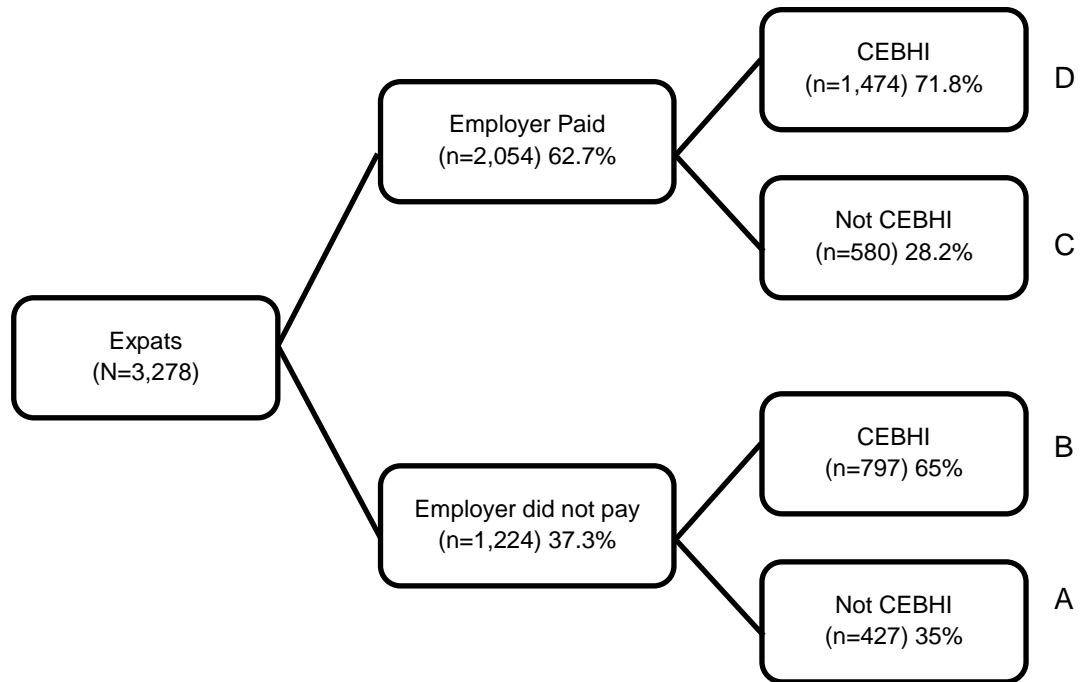


Table 5.1: Definitions of the Four Groups of Study and their representation in the Study Sample

Group	Label	Definition	N
A	Uninsured, not paid	Those employees whose employers did not pay their health expenses and remained uninsured	427 (13%)
B	Insured, not paid	Those employees whose employers did not pay their health expenses, but are insured after CEBHI	797 (24.7%)
C	Uninsured, paid	Those employees whose employers have paid their health expenses but are uninsured	580 (17.7%)
D	Insured, paid	Those employees whose employers have paid their health expenses, and are also insured	1,474 (45%)

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

5.3.1 Comparison of the Personal Characteristics of the Four Groups

Section One in Table 5.2 presents the personal and socio-economic characteristics of the survey respondents. Generally, there are many common personal characteristics between the expatriates workers in the study sample. For example, more than two-thirds (70%) are non-Arabs, 90% of the respondents can speak Arabic and more than 50% can speak English. In addition, more than two-thirds are low-income earners - 66.85% earns at most, SR 2,000 per month. More than 82% of expatriates reported that their health status is either excellent or very good. Finally, there are no major discrepancies amongst the four groups in age and educational levels, since the majority has intermediate or high school education. However, there are also some variations amongst the four groups, such as their ability to speak Arabic or English, marital status, health status and income.

5.3.2 Workplace Characteristics Comparisons of the Four Groups

Section Two in Table 5.2 presents the job and employer characteristics of the respondents. In general, there are some similarities in the workplace characteristics of expatriates. In section Two of Table 5.2, similarity in terms of the dominant economic sectors is noted. It is found that Trading and Construction sectors are the most common industries that employ expatriate workers. Almost half of the respondents were from these industries. In addition, one-fourth of the workers held jobs categorized for unskilled workers that usually required no education, whereas the respondents' education levels (section one of Table 5.2) revealed that only 7% were illiterate.

Section Two in Table 5.2 indicates that variations in the workplace characteristics are salient, including the availability of sick leave, job classification, and the number of employees in companies, particularly for those who have more than 50 employees. However, there is a similarity amongst the four groups in the current job category.

The variation in the personal or workplace characteristics of the study groups could be related to other factors. For example, the ability to speak English could be related to the expatriate's income or age (above 50 years old). In addition, availability of sick leave could be related to the size of the company. Therefore, logistics regression was used in the analysis because of the ability of this statistical method to treat all of the explanatory variables symmetrically and adjusted for all other variables. More details of this method have been discussed in the previous chapter, Section 4.12.4. Appendix 2 provides the univariate

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

analysis with respective p-values, descriptions of the access measures and their association with the personal and workplace characteristics of expatriates.

Table 5.2: Results: Personal and Workplace Characteristics of the Four Study Groups

Section One: Personal Characteristics

Personal Characteristics	A=427	B=797	C=580	D=1,474	P-value
Age (Official)					0.0001
<30	23.2%	13.3%	18.6%	13.9%	
30-	44.5%	42.8%	47.6%	38.5%	
40-	26.9%	34.8%	28.3%	32.8%	
50-	4.7%	8.3%	4.8%	12.9%	
60+	0.7%	0.9%	0.7%	2.0%	
Age (Real)					0.0001
<30	23.7%	13.6%	18.6%	14.1%	
30-	43.8%	42.7%	47.4%	38.6%	
40-	27.4%	34.4%	28.4%	32.6%	
50-	4.4%	8.5%	4.8%	12.8%	
60+	0.7%	0.9%	0.7%	1.9%	
Nationality					0.0001
Arab	27.6%	41.5%	28.8%	25.0%	
Non-Arab	72.4%	58.5%	71.2%	75.0%	
Nationality					0.0001
Indian	20.8%	17.2%	27.4%	27.2%	
Bangladeshi	36.5%	29.0%	28.1%	25.0%	
Pakistani	13.6%	23.7%	17.1%	12.4%	
Egyptian	9.8%	8.0%	10.3%	12.5%	
Filipino	2.1%	1.6%	1.4%	7.5%	
Yemeni	5.4%	7.0%	4.1%	3.8%	
Other Arab	8.4%	10.8%	7.6%	8.8%	
Asian	2.6%	1.8%	3.6%	2.4%	
Western				0.1%	
Other Nationalities	0.7%	0.9%	0.3%	0.4%	
Can Speak Arabic					0.0001
Yes	91.8%	98.0%	93.6%	14.9%	
No	8.2%	2.0%	6.4%	85.1%	
Can Speak English					
Yes	38.2%	44.9%	30.7%	69.0%	
No	61.8%	55.1%	69.3%	31.0%	

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

Personal Characteristics	A=427	B=797	C=580	D=1,474	P-value
Education					0.0001
Illiterate	1.4%	1.6%	.3%	2.2%	
Read/Write	8.7%	4.9%	3.8%	4.6%	
Primary/Secondary	25.3%	23.1%	30.2%	21.6%	
High School	38.2%	35.8%	39.0%	34.1%	
Diploma	6.3%	6.1%	6.4%	9.0%	
Bachelor	19.4%	26.9%	18.1%	24.9%	
Master & Doctorate	0.7%	1.6%	2.2%	3.6%	
Income (SR per month)					0.0001
<=2000	77.3%	72.5%	61.8%	62.8%	
2001-4500	20.8%	24.3%	35.1%	24.5%	
4501-6000	1.4%	2.0%	0.1%	6.2%	
6001-9000	0.2%	0.6%	2.7%	4.4%	
>9000	0.2%	0.6%	0.3%	2.2%	
Marital Status					0.0001
Single/Divorced	19.2%	11.8%	14.3%	11.4%	
Married with Accompanying Family	70.5%	23.1%	71.7%	68.0%	
Married without Accompanying Family	10.3%	65.1%	14.0%	20.4%	
Health Status					0.0001
Excellent/Very Good	79.4%	79.5%	86.0%	83.1%	
Good	13.1%	14.7%	9.8%	14.8%	
Below Average/Poor	7.5%	5.8%	4.1%	2.1%	

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

Section Two: Workplace Characteristics

Workplace Characteristics	A=427	B=797	C=580	D=1,474	P-value
Availability of Sick Leave					0.0001
No	6.2%	10.1%	1.2%	9.1%	
Yes	69.6%	83.7%	95.9%	86.7%	
Do not know	24.2%	6.2%	2.9%	4.2%	
Current job category					0.0001
Managerial position	0.9%	2.4%	0.5%	4.7%	
Specialist in Professional , Technical and Humanitarian Fields	14.8%	21.5%	19.8%	16.3%	
Technical in Professional, Technical and Humanitarian Fields	4.2%	4.0%	1.4%	5.7%	
Occupations of Supporting Basic Engineering	31.1%	24.7%	38.4%	27.7%	
Others	48.9%	47.4%	39.8%	45.59%	
Job's education requirements					0.0001
Specialist with university education	15.7%	14.2%	30.3%	31.2%	
Professional with education higher than high school	5.6%	4.9%	2.8%	7.7%	
Technical with high school education	26.9%	26.6%	19.3%	21.6%	
Manual worker with less than high school education	17.1%	22.5%	18.3%	17.2%	
Unskilled usually with no education	34.7%	31.7%	29.3%	21.2%	
Economic sector					0.0001
Agriculture	2.6%	5.4%	1.0%	1.8%	
Mining / Quarrying	0.7%	0.9%	3.3%	2.3%	
Industrial	12.9%	11.9%	20.0%	18.6%	
Water and power	4.0%	5.0%	1.6%	.3%	
Construction	14.3%	13.2%	14.7%	25.0%	
Trade	28.1%	26.9%	22.1%	39.1%	
Transportation	8.0%	7.3%	7.2%	.3%	
Financial / Business	1.9%	4.4%	5.2%	4.1%	
Education / Training	19.0%	22.3%	22.6%	6.3%	
Other	8.7%	2.8%	2.4%	2.2%	
Number of employees in the company					0.001
<10	23.9%	24.6%	18.4%	13.0%	
10-24	26.5%	22.9%	5.3%	9.5%	

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

Section Two: Workplace Characteristics

Workplace Characteristics	A=427	B=797	C=580	D=1,474	P-value
25-50	15.0%	14.3%	10.0%	8.1%	
50+	34.7%	38.2%	66.3%	69.4%	

5.4 Comments on the Representativeness of the Study Sample against the Expatriate Worker Population in Riyadh City in Particular and Saudi Arabia as a Whole

5.4.1 The Representativeness of the Riyadh Region's Expatriate Population against Saudi Arabia's Expatriates Workers Population.

The expatriate working population in the Riyadh region represents 32.63% of the total expatriate workers in Saudi Arabia. Based on the statistical data available with the Ministry of Labour in Saudi Arabia, Riyadh region's expatriate population has similar characteristics with the expatriate population in the Kingdom of Saudi Arabia with respect to personal and workplace characteristics. These similarities are: the average age of expatriates (34 years old versus 35 years old), education level (85.5% have lower than high school education), the top ten nationalities (the top ten nationalities represent 93.7 % of total expatriates' nationalities), the top ten job categories (Assistant Basic Engineering and Services) two of the ten job categories represent 71.5% (Assistant Basic Engineering (36.3%), and Services (35.2%)), and the sequence of top industries (Ministry of Labour 2009, Ministry of Labour, 2009a, Ministry of Labour, 2008).

Therefore, it is appropriate to extrapolate the study findings for all expatriates in the Kingdom since the expatriate working population of Riyadh accurately represents the expatriate working population across Saudi Arabia.

5.4.2 The Representativeness of the Study Sample Size and their Characteristics against Expatriate Workers in the Riyadh Region

It was found that some demographic information gathered from the survey corresponds with the information taken from the official sources used in the study. For example, the top six nationalities of expatriate workers in the study correspond to the top six nationalities of expatriate workers (the top two represent more than 50%) in the private sector of Al Riyadh region per the Ministry of Labour's database (Ministry of Labour, 2009a). Furthermore, the rank of the three main job categories matches that from the Ministry of Labour's population data per job categories (top two categories represent more than 70% of total expatriate

Chapter 5: Result of Comparison of Personal and Workplace Characteristics of the Four Study Groups

population as mentioned before) (Ministry of Labour, 2009a) . It was also noted that the average age between the study sample population and the expatriate population in the private sector has no significant difference. In the study sample, the median age is approximately 36 years old. The average age of the expatriate working population in the Riyadh region is approximately 34 years old (Ministry of Labour, 2009a).

As explained and illustrated in Chapter 4, the sample size determination and sampling methods were based on the economic sector percentage and company sizes. However, there were some economic sectors that were excluded from the sample size such as the healthcare sector (including hospital, healthcare centres, pharmaceutical companies, etc.). This could lead to a variation in some figures such as education and the economic sectors. According to the Ministry of Labour, the majority of expatriate workers who have higher education work in Health Education and Healthcare sectors (Ministry of Labour, 2009a). Since the healthcare sector was excluded from the study, this could lead to a variation in the educational level between the sample size and the Riyadh population. However, in general, the sample size represents the expatriate worker population of Riyadh City.

This chapter mainly focussed on the descript analysis of the study groups. The next chapter highlights the results of study group comparisons on measures of access to medical care. The results include both multiple comparison analysis and logistic regression analysis.

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

6 Chapter 6: Results of Comparison of the Study Groups on Measures of Access to Care

6.1 Structure of the Chapter

The impact of health insurance and previous payment methods on access to medical care are measured based on the insurance status and employer payments to healthcare before CEBHI. In order to do this comprehensively, the next section highlights results of the multiple comparisons amongst the four groups and the result of the logistic regression analysis is highlighted following this. The logistic analysis was done in different ladders and with different control variables. Initially, the logistic regression analysis began by comparing the overall influence of Previous Method of Paying for Healthcare (PMPHC) on all three access measures (section 6.3), followed by influence of insurance on all three access measures alone (section 6.4). A combination of the insurance and PMPHC was also done, to assess the influence of both on access to medical care (section 6.5). Therefore, the influence of both insurance and PMPHC was assisted by considering the influence of workplace characteristics alone or combined with personal characteristics (section 6.6 & section 6.7) and their relevance to the study findings of access to medical care (section 6.8). At the end of the chapter, the overall study findings together with a summary of the findings are provided (section 6.9 and table 6.17).

6.2 The Result of Multiple Comparisons Analysis

Table 6.1 provides the multiple comparisons analysis for the relationship between access to medical care and the responsibility for payment of healthcare expenses and health insurance. Since there was a significant difference between the four groups, each of the groups was compared using Chi-square to see which two groups differed significantly. Since there was a significant difference between the four groups, I then compared each two groups using Chi-square to determine which two groups differed significantly. The p-value for this comparison was adjusted by Bonferroni correction to protect against Type II error. Table 6.1 shows the result of the comparisons.

Figure 6.1 shows the access to medical care for each group. It demonstrates that those who are insured and whose employers paid their medical expenses before CEBHI (Group D) had the best access to medical care amongst the four groups for all access measures. Additionally, it demonstrates that Group A (uninsured and whose employer did not pay their medical expenses before CEBHI) had the worst access to medical care amongst the four

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

groups. Group B had the second best access to medical care for Access 1 and Access 3, whereas Group C had the second best access to medical care for Access 2 after Group D.

However, comparison of the details of access to medical care is best illustrated in Table 6.1. Table 6.1 indicates that statistically Group B (insured but their employer did not pay their medical expenses) had significantly better access for Access 1 than Group C (uninsured but their employers pay their medical care expenses). However, Group C had better access than Group B for Access 2, and the opposite was true for Access 3 (this relationship was not statistically significant).

In summary, the analysis indicates that access to medical care is not only associated with direct access, but also with the Previous Method of Paying for Healthcare (PMPHC) because although groups B & D are insured, they have different access to medical care and this difference is significant.

Table 6.1: Multiple Comparisons of the Four Study Groups in Access to Medical Care³⁸

Access to Usual Medical Care Setting (Access1)							
Study Group	No	Yes	p-value	Study Group	No	Yes	p-value
A	94.1	5.9	0.0001*	B	39.5	60.5	0.01#
B	39.5	60.5		D	8.6	91.4	
A	94.1	5.9	0.0001*	C	54.5	45.5	0.0001*
C	54.5	45.5		B	39.5	60.5	
A	94.1	5.9	0.0001*	C	54.5	45.5	0.0001*
D	8.6	91.4		D	8.6	91.4	
Study Group	Access to Usual Medical Care Setting						
	A		B		C		D
A							
B	0.0001						

#p-value>0.008 (not significant)

*P-value < .008 (significant)

³⁸ Bonferroni Correction used to set up the p-value = 0.05/6= 0.008. Bonferroni test used to help to eliminate data from appearing significant while it happened by chance. The Bonferroni suggests that the "p" value for each test must be equal to alpha divided by the number of tests.

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

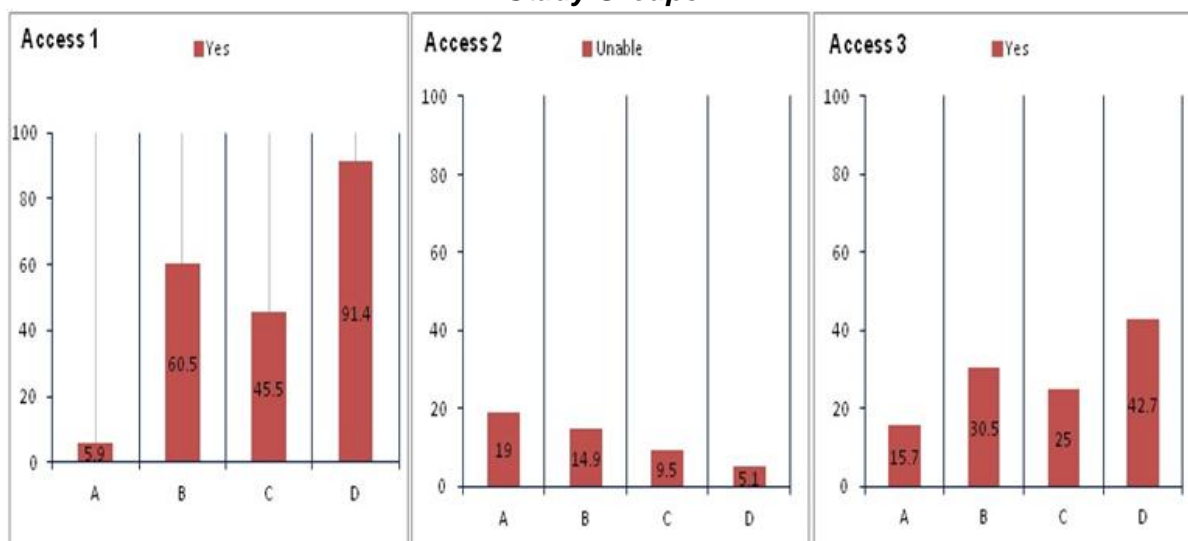
C	0.0001	0.0001		
D	0.0001	0.01	0.0001	

Inability of Access Medical Services (Access 2)							
Study Group	Able	Not Able	p-value	Study Group	Able	Not Able	p-value
A	81	19	0.059#	B	85.1	14.9	0.0001*
B	85.1	14.9		D	94.9	5.1	
A	81	19	0.0001*	C	90.5	9.5	0.015#
C	90.5	9.5		B	85.1	14.9	
A	81	19	0.0001*	C	90.5	9.5	0.003*
D	94.9	5.1		D	94.9	5.1	
Study Group	Inability of Access Medical Services						
	A	B		C		D	
A							
B	0.059						
C	0.0001	0.015					
D	0.0001	0.0001		0.003			

Utilisation of Medical Care (Access3)							
Study Group	No	Yes	p-value	Study Group	No	Yes	p-value
A	84.3	15.7	0.0001*	B	69.5	30.5	0.0001
B	69.5	30.5		D	57.3	42.7	
A	84.3	15.7	0.001*	C	75	25	0.053#
C	75	25		B	69.5	30.5	
A	84.3	15.7	0.0001*	C	75	25	0.0001*
D	57.3	42.7		D	57.3	42.7	
Study Group	Utilisation of Medical Care						
	A	B			C		D
A							
B	0.001						
C	0.009		0.053				
D	0.0001		0.0001		0.0001		

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

Figure 6.1: Comparison of Access to Medical Care Measures 1, 2 and 3 for the Four Study Groups



The following sections of this chapter address the results of the logistic regression analysis. Section 6.3 begins with the influence of the employers' previous payment methods (whether they pay or do not pay for medical care expenses) and whether this thesis has identified the Previous Method of Paying for Healthcare (PMPHC) solely, as a means of gaining access to medical care. Section 6.4 addresses the influence of insured alone, and the section following this, addresses the influence of both insurance and PMPHC on access to medical care and whether this influence changed after adjustments for workplace and personal characteristics.

At the end of this chapter, Table 6.17-page-148 presents the summary of the logistical regression analysis on the influence of insurance and PMPHC on access to medical care, after adjustment for workplace and personal characteristics. 95% confidence interval (CI) of the odds ratio was calculated.

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

6.3 Overall Influence of Previous Method of Paying for Healthcare (PMPHC)

6.3.1 Access to Usual Medical Care Setting (Access 1)

Table 6.2: Overall Influence of PMPHC on Access 1

PMPHC	Odds Ratio (OR)	95% C.I (OR)	P value
Not paid by employer	1		
Paid by employer	5.17	4.425-6.04	0.0001

(Unadjusted OR)

Table 6.2 indicates that expatriate workers whose employers previously paid their medical care expenses before CEBHI are 5 times more likely to report an ability to access usual medical care setting (Access1), compared with expatriate workers whose employers did not pay medical care expenses, regardless of their insurance status after CEBHI.

6.3.2 Inability to Access Medical Services (Access 2)

Table 6.3: Overall Influence of PMPHC on Access 2

PMPHC	OR	95% C.I (OR)	P value
Not paid by employer	1		
Paid by employer	0.345	0.273-0.436	0.0001

(Unadjusted OR)

Table 6.3 illustrates that compared with expatriate workers whose employers did not pay their medical care expenses before CEBHI, workers whose employers covered their medical care expenses were almost two-thirds less likely to report an inability to access medical care regardless of their insurance status after CEBHI.

6.3.3 Utilisation of Medical Care (Access 3)

Table 6.4: Overall Influence of PMPHC on Access 3

PMPHC	OR	95% C.I (OR)	P value
Not paid by employer	1		
Paid by employer	1.786	1.527-2.088	0.0001

(Unadjusted OR)

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

Tables 6.4 shows that expatriate workers whose employers previously paid their medical care expenses before CEBHI had more than 1.5 times the utilisation of medical care (Access 3) compared to expatriate workers whose employers did not pay their medical care expenses regardless of their insurance status after CEBHI.

6.4 Overall Influence of Enrolment in CEBHI

6.4.1 Access to Usual Medical Care Setting (Access 1)

Table 6.5: Overall Influence of Insurance on Access 1

Enrolment in CEBHI	OR	95% C.I (OR)	P value
NOT INSURED	1		
INSURED	10.349	8.709-12.299	0.0001

(Unadjusted OR)

Table 6.5 demonstrates that compared to uninsured workers, being enrolled in CEBHI increased an expatriate's possibility of having Access1 by more than 10.

6.4.2 Inability to Access Medical Services (Access 2)

Table 6.6: Overall Influence of Insurance on Access 2

Enrolment in CEBHI	OR	95% C.I(OR)	P value
NOT INSURED	1		
INSURED	0.575	0.515-0.995	0.047

(Unadjusted OR)

Table 6.6 shows that compared to uninsured expatriates, insured workers were more than 42% less likely to report an inability to access medical care (Access 2).

Chapter 6: Result of Comparison of the Study Groups on Measures of Access to Care

6.4.3 Utilisation of Medical Care (Access 3)

Table 6.7: Overall Influence of Insurance on Access 3

Enrolment in CEBHI	OR	95% C.I (OR)	P value
NOT INSURED	1		
INSURED	2.313	1.946-2.750	0.0001

(Unadjusted OR)

Table 6.7 demonstrates that insured workers have twice the utilisation of medical care than those who are uninsured.

6.5 Overall Influence of Health Insurance and PMPHC

6.5.1 Access to usual Medical Care Setting (Access 1)

Table 6.8: Overall Influence of PMPHC and Health Insurance on Access to Usual Medical Care Setting (Access 1)

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	24.60	15.90-38.08	0.0001
C. Not Insured but Paid	13.27	8.51 -20.68	0.0001
D. Insured and Paid	169	107.85-266.08	0.0001

(Unadjusted OR)

Compared with Group A workers, Group D workers were more than 160 times more likely to have access to a usual medical care setting. Group C workers had a 13 times greater chance of having access to a healthcare setting in comparison to Group A workers (see Table 6.8). Group B workers were 24 times more likely to have access to a medical care setting compared with Group A workers.

The utilisation pattern above shows that health insurance encourages respondents to access a usual healthcare setting (Access1) regardless of whether employers pay for their healthcare expenses or not.

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6.5.2 Inability to Access to Medical Services (Access 2)

Table 6.9: Overall Influence of PMPHC and Health Insurance on Inability to Access Medical Care Services (Access 2)

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	0.739	(0.54-1.01)	0.059
C. Not Insured but Paid	0.452	(0.31-0.65)	0.0001
D. Insured and Paid	0.216	(0.15-0.30)	0.0001

(Unadjusted OR)

Table 6.9 indicates that no significant statistical difference was found between Access 2 for Group B workers and Group A workers. Compared with Group A workers, Group C workers had a *55% reduced inability to access medical care*. In addition, compared with Group A workers, Group D workers had a *78% reduced inability to access medical care*.

The data above implies that health insurance alone does not guarantee better access to healthcare services. Insured workers without paid medical expenses (Group B) reported less access than Group C (uninsured but paid medical expenses). This suggests that PMPHC has a stronger influence on this access measure than insurance.

6.5.3 Utilisation of Medical Care (Access 3)

Table 6.10: Overall Influence of Health Insurance and PMPHC on Utilisation of Medical Care (Access 3)

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	2.36	1.75-3.19	0.0001
C. Not Insured but Paid	1.77	1.28-2.44	0.0001
D. Insured and Paid	4.00	3.02-5.30	0.0001

(Unadjusted OR)

Table 6.10 illustrates that compared to Group A workers, Group D workers were 4 times more likely to utilize medical care (Access 3). Group C workers had more than 1.5 times the utilisation of medical care when compared to Group A workers. Group B workers had more than twice the utilisation of medical care than Group A workers.

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Insured workers reported greater utilisation of healthcare than those who were uninsured. However, the responsibility for payment of healthcare expenses also affected utilisation of medical care, as there was minimal difference between Groups B and C. Overall, the insured group who received payment for medical expenses (Group D), reported the best utilisation of medical care (Access 3).

6.6 The Influence of Health Insurance and PMPHC Adjusted for Workplace Characteristics (Model 2)

The conceptual hierarchical framework for access to medical care has been used to adjust the impact of insurance on access to medical care as stated before (see Figure 4.2). Additional to overall insurance *and* PMPHC influence on access to medical care, both the workplace and personal characteristics are used to adjust the impact of insurance on access to medical care. In this section, the influence of insurance and PMPHC on access to medical care will be explored and adjusted by the workplace characteristics in the model. The following workplace characteristics have been adjusted for: company size, economic sector, availability of sick leave, and the job's educational requirements³⁹.

6.6.1 The Influence of Health Insurance and PMPHC on Access 1 Adjusted for Workplace Characteristics

Table 6.11: The Influence of Health Insurance and PMPHC on Access 1 for the Four Groups after Adjustment for Workplace Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	26.30	15.82-41.21	0.0001
C. Not Insured but Paid	14.61	9.28-23.02	0.0001
D. Insured and Paid	234.87	144.76-381.70	0.0001

After adjustment for workplace characteristics, when compared with Group A workers, Group D workers were 230 times more likely to have access to their usual medical care setting (Access 1). Group C workers had a 14 times greater chance of having access to their usual medical care setting when compared with Group A workers (see Table 6.11 for more details).

³⁹Refers to the skills and education required in certain jobs (see section 4.10.1, Chapter 4)

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In addition, Group B workers were more than 26 times more likely to have access to their usual medical care setting (Access 1) compared with Group A workers.

6.6.2 Influence of Health Insurance and PMPHC on Access 2 Adjusted for Workplace Characteristics

Table 6.12: The Influence of Health Insurance and PMPHC on Access 2 for the Four Groups after Adjustment for Workplace Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	0.761	0.55-1.06	0.121
C. Not Insured but Paid	0.464	0.32-0.68	0.0001
D. Insured and Paid	0.211	0.14-0.31	0.0001

Table 6.12 indicates that after adjusting for workplace characteristics, Group C workers had a *54% reduced inability to access to medical care* in comparison to Group A workers. In addition, Group D workers had a *78% reduced inability to access to medical care* when compared with Group A workers. No significant statistical difference was found between Group A and Group B workers even after adjustment for workplace characteristics.

The data above implies that health insurance alone does not guarantee better access to medical care services, even after adjusting for workplace characteristics. The influence of health insurance is more effective when it is linked to an employer's previous method of paying for his worker's healthcare expenses. When workers are insured and employers pay for their workers healthcare expenses, there is a significantly reduced incidence of reporting inability to access medical care.

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6.6.3 The Influence of Health Insurance and PMPHC on Access 3 Adjusted for Workplace Characteristics

Table 6.13: The Influence of Health Insurance and PMPHC on Access 3 for the Four Groups after Adjustment for Workplace Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	1.97	1.44-2.70	0.006
C. Not Insured but Paid	1.45	1.04-2.03	0.03
D. Insured and Paid	3.86	2.82-5.29	0.0001

After adjustment for workplace characteristics, compared with Group A workers, Group D workers had a more than 3 times increased possibility of utilizing of medical care (see Table 6.13). Group C workers had almost 1.5 times the utilization of medical care (Access 3) that those in Group A had. Group B workers had almost twice the utilisation of medical care of Group A workers.

The odds ratios were reduced for all Groups when the model was adjusted for workplace characteristics. However, insured workers have better utilisation of medical care than those not insured and not paid. In addition, responsibility for payment of healthcare expenses was also a consideration in the respondents' utilisation of medical care, because workers in Group C have better access to access 3 than those in Group A.

6.7 The Influence of Health Insurance and PMPHC Adjusted for Workplace and Personal Characteristics (Model 3)

A conceptual hierarchical framework has been used to assess the impact of insurance on access to medical care as mentioned before (see Figure 4.2 - page 123). Additional to overall insurance and PMPHC, both workplace and personal characteristics have been used to assess the impact of insurance on access to medical care. In the following section, the influence of insurance and PMPHC will be assessed, after adjustment for workplace characteristics and personal characteristics. The following personal characteristics were adjusted for: age, nationality (Arab versus non-Arab), ability to speak Arabic, ability to speak English, education, income, marital and health status.

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6.7.1 The Influence of Health Insurance and PMPHC on Access 1 Adjusted for Workplace and Personal Characteristics

Table 6.14: The Influence of Health Insurance and PMPHC on Access 1 for the Four Groups after Adjustment for Workplace and Personal Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	25.11	16.05-39.30	0.0001
C. Not Insured but Paid	14.45	9.17-22.77	0.0001
D. Insured and Paid	234.53	144.14-381.62	0.0001

Table 6.14 indicates that after adjustment for workplace characteristics and personal characteristics, Group D workers were 234 times more likely to have access to a usual medical care setting than Group A workers. Group C workers had more than 14 times greater chance of having access to a usual medical care setting when compared with Group A workers. In addition, Group B workers were more than 25 times more likely to have access to their usual medical care setting compared with Group A workers.

After adjusting for workplace characteristics and personal characteristics, the utilisation pattern above shows that health insurance encourages expatriate employees to access any usual medical care setting (Access1) and particularly those whose employers paid for their healthcare expenses. When the model was adjusted for personal characteristics and workplace characteristics, the odds ratio changed only slightly.

6.7.2 The Influence of Health Insurance and PMPHC on Access 2 Adjusted for Workplace and Personal Characteristics

Table 6.15: The Influence of Health Insurance and PMPHC on Access 2 for the Four Groups after Adjustment for Workplace and Personal Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1	1	
B. Insured but Not Paid	0.755	0.540-1.056	0.101
C. Not Insured but Paid	0.475	0.323-0.698	0.0001
D. Insured and Paid	0.242	0.162-0.360	0.0001

Table 6.15 illustrates that after adjusting for workplace and personal characteristics, Group C workers had a 53% reduced inability to access medical care than Group A workers. In

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addition, compared with Group A workers, Group D workers had a *75% reduced inability to access medical care*. No significant statistical difference was found between Group A and Group B workers.

The data above implies that health insurance alone does not guarantee better access to medical care services, even after adjusting for workplace and personal characteristics. The influence of health insurance is more effective when it is linked with an employer's willingness to pay for his worker's healthcare expenses. When workers are insured and employers pay for their workers healthcare expenses, there is a reduced incidence of reporting an inability to access medical care services.

6.7.3 The Influence of Health Insurance and PMPHC on Access 3 Adjusted for Workplace and Personal Characteristics

Table 6.16: The Influence of Health Insurance and PMPHC on Access 3 for the Four Groups after Adjustment for Workplace and Personal Characteristics

Group	OR	95% C.I (OR)	P value
A. Not Insured Not Paid	1		
B. Insured but Not Paid	1.95	1.42-2.68	0.009
C. Not Insured but Paid	1.48	1.06-2.03	0.023
D. Insured and Paid	3.83	2.79-5.27	0.0001

Table 6.16 shows that after adjusting for workplace and personal characteristics, Group D workers are three times as likely to utilize medical care (access 3), compared to Group A workers. In addition, Group C workers had almost 1.5 times the utilisation of medical care (Access3), and Group B workers twice the visits when compared to Group A workers.

Workers who are insured have better utilisation of medical care than those who are not insured and not paid for their medical expenses, even after adjusting for workplace and personal characteristics. In addition, responsibility for payment of healthcare expenses is a consideration in respondents' utilisation of medical care as workers in Group C have more utilisation than those in Group A.

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6.8 Relative Influence of Workplace and Personal Characteristic Variables on Access to Medical Care

6.8.1 Access to Medical Care Setting (Access 1)

As indicated in Table 6.17, workplace characteristics have a significant influence on the model, as the model block Chi-square increased more than 62. The Chi-square of the model was significant. The major increase in the model was for Group D workers i.e. the odds ratio increased positively from model 1 (odd ratio = 169.4) and model 2 (odd ratio = 234.87). The main variables that influence Access 1 from workplace characteristics are a job's education requirements and economic sector. Appendix 3, section 3.1, indicates the main workplace characteristics that influence Access 1.

The change between model 2 and model 3 reflects the influence of personal characteristics and workplace characteristics on the model (see Table 6.17). The model block Chi-square increase was more than 9 and it was significant. However, the influence of workplace characteristics and personal characteristics was lower than the influence of workplace characteristics alone. The main variables that influence Access 1 from personal characteristics are the marital status and expatriate's age (see Appendix 3, Section 3.2).

6.8.2 Inability to Access Medical Services (Access 2)

Table 6.17 indicates that workplace characteristics have a significant influence on the model as the model block Chi-square increases more than 56, which was significant. The main factors that influence workplace characteristics (company size, economic sector, and the job's education requirements) (more details in Appendix 3, section 3.1).

Table 6.17 indicates that the change between model 2 and model 3 reflects significant influence of personal and workplace characteristics. The model blocks Chi-square change increased by more than 32. The main variables within personal characteristics are marital status and health status (see Appendix 3, section 3.2).

6.8.3 Utilisation of Medical Care (Access 3)

Table 6.17 indicates that workplace characteristics also influence the model. The increase in the model block Chi-square was more than 119 and was significant. The main variables that are associated with workplace characteristics for Access 3 are job's education requirements, economic sector, company size, and availability of sick leave.

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Table 6.17 indicates that personal and workplace characteristics have a significant influence on healthcare utilisation. The increase in the model block Chi-square between model 2 and model 3 was more than 35 and was also significant. The main variables associated with Access 3 from personal characteristics are marital status and health status.

6.9 Summary of Findings

Table 6.17 presents the summary of the logistical regression analysis on the influence of insurance and PMPHC on access to medical care, after adjustment for workplace and personal characteristics. A 95% confidence interval (CI) of the odds ratio was calculated. Block regression indicates how much the model improved since the last block. For example, in order to adjust the model for workplace characteristics and assess the impact of these as a whole, block regression was used to measure if the model was significant for access to medical care.

Generally, the results showed that after controlling the other variables, both health insurance coverage and PMPHC have had a substantially positive impact, increasing access to medical care for expatriate workers. Insured expatriate workers, whose employers paid healthcare expenses before CEBHI (Group D), reported the highest access to medical care (all three access measures) amongst the four study groups. Therefore, although Groups D and B are insured, workers in Group D are more likely to have access to medical care (the odds ratio is more than 24 for Group B versus the odds ratio of 170 for Group D when both groups are compared to Group A (not insured and not paid)).

In addition, the impact of insurance on an expatriate whose employer did not pay healthcare expenses before CEBHI (Group B) is moderate. The impact of health insurance on this group is positive and increased their access to usual medical care (Access 1). For example, the Group B workers are more likely to have access to usual medical care (odds ratio is more than 24) than Group C (odds ratio is more than 13) when both groups are compared to Group A. In addition, the impact of insurance on access to usual medical care (Access 1) is statistically higher for Group B when compared to Group C. This evidence is supported by Figure 6.1 - page 135.

On the other hand, the impact of insurance on Group B for Access 2 is not as secure as expatriate workers whose employers paid their medical expenses (Group C). Group C workers had a 55% reduced inability to access medical care when compared with Group A. However those workers who are only insured but have not previously paid expenses

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(Group B) have reduced their inability by 26% when compared with Group A, but this relationship is not statistically significant. In other words, expatriate workers who are uninsured but whose employers pay their healthcare expenses (Group C), receive better access to medical care compared with those who are only insured but whose employers did not pay healthcare expenses prior to CEBHI (Group B). In addition, Group C has better access to Access 2 compared with Group B, but this fact is not statistically significant (see Table 6.1 - page 133).

In summary, PMPHC is very significant for the Access 2 measure and more important than insurance, yet health insurance enhances this access measure. Therefore, the inability of Group D workers (insured and paid) to access medical care has been reduced by 78% when compared with Group A workers, whereas Group C had only a 55% reduction in inability. In addition, when Groups D and C are compared together for Access 2, Group D had significantly better access than Group C.

The influence of insurance on Access 3 is very significant for Groups B, C and D when compared with Group A, although the magnitude of the odds ratio for Group D is more than Group B. However, the influences of insurance alone and PMPHC alone on Access 3 are similar but health insurance has a slightly better magnitude. Workers in Groups B and C have similar probability for Access 3 when compared with Group A (Group B odds ratio is 2.3 versus 1.7 for Group C). Adjustment for workplace and personal characteristics lead to a small reduction in the odds ratios. In addition, when Groups B and C are compared for Access 3, Group B has better access than Group C but this is not statistically significant (see Table 6.1 - page 133).

Furthermore, the workplace, as well as personal characteristics, has a significant impact on access to medical care. However, the magnitude of the influence of both characteristics did not change the odds ratio for access to medical care measures, except for the influence of workplace characteristics on Access 1 Group D.

The main study's finding regarding comparison of study groups has been elaborated upon in this chapter. The next chapter is the main discussion, and links study findings with the literature.

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Table 6.17: Summary of the Logistical Regression Analysis of the Influence of Insurance and PMPHC on Access to Medical Care and after Adjusted for Workplace and Personal Characteristics

		Factors Associated with Access to Medical Care		
	N	Model 1 (Insurance and PMPHC) OR crude (95% CI)	Model 2 (Insurance and PMPHC) OR adjusted for workplace characteristics (95% CI)	Model 3 (Insurance and PMPHC) OR adjusted for workplace characteristics and Personal Characteristics (95% CI)
Access to Usual Medical Care Setting (Access 1)				
A. Not Insured Not Paid	427 (13.0%)	1	1	1
B. Insured but Not Paid	797 (24.39%)	24.60(15.90-38.08)***	26.30(16.82-41.12)***	25.11(16.05-39.30)***
C. Not Insured but Paid	580 (17.7%)	13.27(8.51-20.68)***	14.61(9.28-23.02)***	14.45 (9.17-22.77)***
D. Insured and Paid	1,474 (45.0%)	169.4(107.85-266.08)***	234.87(144.76-381.70)***	234.53(144.14-381.62)***
^ Change in Block Model			62.21***	9.36*
Inability to Access Medical care (Access 2)				
A. Not Insured Not Paid	427 (13.0%)	1	1	1
B. Insured but Not Paid	797 (24.39%)	0.74(0.54-1.01)#	0.76(0.55-1.06)#	0.75 (0.54-1.06)#
C. Not Insured but Paid	580 (17.7%)	0.45(0.31-0.65)***	0.46(0.32-0.68)***	0.48 (0.32-0.69)***
D. Insured and Paid	1,474 (45.0%)	0.22(0.15-0.30)***	0.21 (0.14-0.31)***	0.24 (0.16-0.36)***
^Change in Block Model			56.75***	32.71***
Utilisation of Medical care (Access 3)				
A. Not Insured Not Paid	427 (13.0%)	1	1	1
B. Insured but Not Paid	797 (24.39%)	2.36(1.75-3.19) ***	1.97(1.44-2.70)**	1.95 (1.42-2.68)**
C. Not Insured but Paid	580 (17.7%)	1.77(1.28-2.44)***	1.45(1.10-2.03)*	1.48(1.15-2.08)*
D. Insured and Paid	1,474 (45.0%)	4.00(3.02-5.30)***	3.86 (2.82-5.29)***	3.83 (2.79-5.27)***
^ Change in Block Model			119.72***	35.67.***

#p-value>0.05 (not significant)

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*P-value < .05 (significant)

**P-value <0.01 (highly significant)

***P-value <0.001 (very highly significant)

^ represent the change in block model from model 1 to 2 or from model 2 to model 3. It indicates how much the model improved since the last block as well as if the change of the amount of information explained by the model is significant or not (Field, 2009).

7 Chapter 7: Discussion

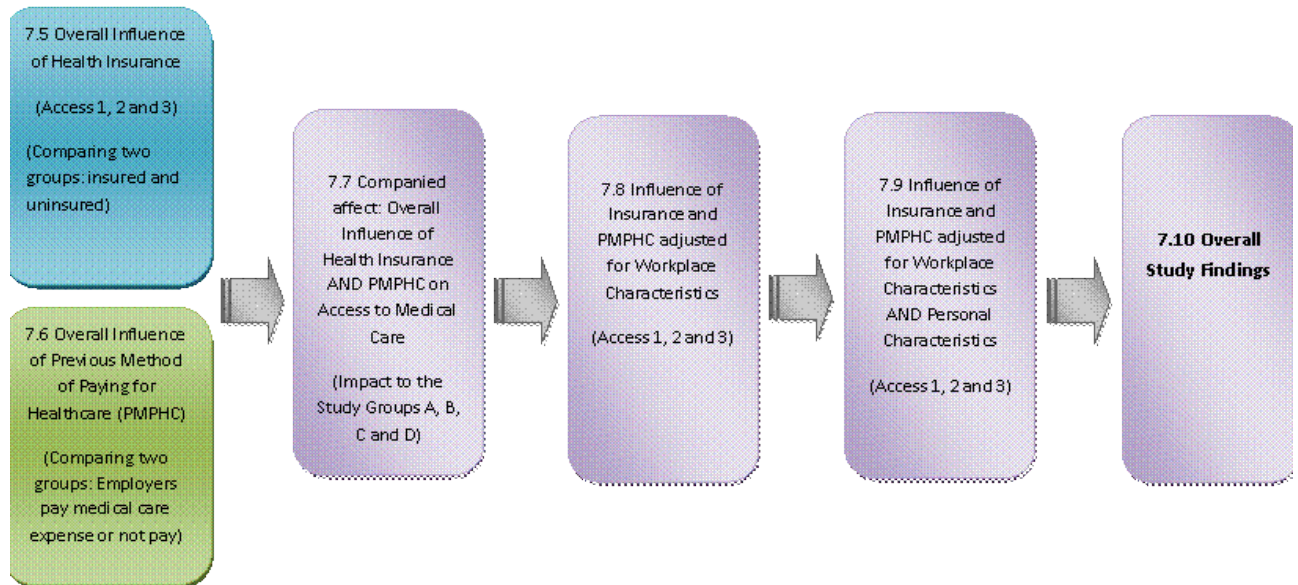
7.1 Structure of the Chapter

This chapter commences with an introduction highlighting the suitability and the representativeness of the place of study in comparison to the whole expatriate worker population in the Kingdom of Saudi Arabia. In addition, the similarities of expatriate characteristics in Saudi Arabia and other GCC countries are defined as well as the initial financial impact of CEBHI on healthcare financing in Saudi Arabia. The limitations and strengths of this thesis will also be discussed.

The main study findings and their links with existing literature will be addressed. These findings are not only associated with the impact of health insurance on access to medical care, but also how this impact is influenced by the PMPHC. However, this will be addressed after determining the impact on insurance alone on access to medical care (section 7.5), as well as the impact of PMPHC alone on access to medical care (section 7.6) before discussing the impact of insurance & PMPHC on access to medical care (section 7.7) or after adjustment for the workplace and personal characteristics of the expatriates (section 7.8 and section 7.9). Therefore, the discussion about the relationship between health insurance and access to medical care has been assessed via three models: the overall impact of insurance, the overall impact of PMPHC, the impact of health insurance & PMPHC together or after adjustment for workplace characteristics, and the impact of health insurance adjusted for both workplace and personal characteristics. Figure 7.1 illustrates the flow of discussions leading to the overall findings of the study.

A framework/model for understanding the complex relationship of health insurance on access to medical care is presented at the end of this chapter.

Figure 7.1: Flow of discussions leading to the overall study findings



7.2 Introduction

As previously mentioned, Saudi Arabia as well as GCC countries is unique in that it is categorised by the World Bank as being a high-income country, a characteristic of a developed country, and shared with developing countries healthcare systems, such as how their healthcare services are financed. Therefore, in the course of this research, it was important to explore the characteristics of high-income developed countries and those developing, in terms of the impact of health insurance on access to medical care.

Like other GCC-member countries, Saudi Arabia has a distinctive demographic composition in the private sector. Expatriate workers comprise approximately 90% of the private sector's manpower. Despite this, expatriate workers (or migrant workers, as they are sometimes referred to), are a minority of the population as a whole and are categorized as such. The three main characteristics of GCC countries including Saudi Arabia, are high-income governments, dominant expatriate populations, and under-development of the healthcare system, including healthcare financing.

The CEBHI scheme was implemented in Saudi Arabia to benefit all expatriate workers in the private sector, with the multiple aims of regulating the provision of healthcare for expatriates whilst providing financial protection against healthcare expenses, controlling who benefits from the government healthcare budget, reducing the load for the government's healthcare

providers, and increasing participation of private healthcare sector expenditure. Subsequently, this new health insurance policy was expected to increase expatriate access to private healthcare services and reduce the demand on governmental healthcare services, thereby allowing better government spending on healthcare services (Al-Rabeeah, 2000, Saati, 2000, Cabinet of Ministers, 1999b).

Although Saudi Arabia is one of the few GCC countries to reform her private healthcare system and reduce dependence on government resources, government health expenditure still dominates total health expenditure, and private expenditure is lower than the population cover as discussed in Chapter 3, section 3.7.1. However, the mode of payments has changed, predominantly by reducing OOP payments.

GCC countries are similar to other Middle Eastern countries wherein health systems are fragmented, and this leads to fragmentation of the healthcare financing (Gericke, 2004). For example, the healthcare funding in Saudi Arabia is split amongst more than eight different government agency budgets, and each agency provides health services for its own targeted population. However, the MOH in Saudi Arabia is the main healthcare provider and is estimated to provide approximately 60% of all health services. Other government offices provide comprehensive health services for their employees and dependents. These providers have possessed a fairly static percentage of hospital beds, approx. 20%, since 1995 (MOH, 1995, MOH, 2003, MOH, 2008). Their budgets are allocated directly from the Ministry of Finance through their respective ministries or agencies. In addition, health financing of other GCC countries is similar to Saudi Arabia with regard to the fragmentation of financing healthcare services amongst different government agencies (Supreme Council of Health, 2011, Ministry of Health Oman, 2006, Ministry of Health, 2011, General Secretariat of the Executive Council et al., 2008, Al Razzi Holding K.S.C.C, 2012).

The traditional way of measuring access to medical care has been via population-based surveys. However, Saudi Arabia does not have a national survey that provides insight about those outside of the system, particularly the vulnerable groups such as low-income individuals and minorities. The ability to monitor whether an individual can enter or access the healthcare system is very important, in order to capture information about what happens once they are in the system (i.e. CEBHI), and about the outcome of the care received.

Comparison of the data from the study sample and from the Ministry of Labour increased confidence, in that the sample size was representative of the total expatriate population in Riyadh City. For example, the top six nationalities of expatriate workers within the study

correspond to the top six nationalities of expatriate workers in Riyadh City. The three main job categories match those from the Ministry of Labour's population data (top two categories represent more than 70% of the total expatriate population), and there was no significant difference in the average age of the study sample population and the expatriate population in the private sector as reported by Ministry of Labour (Ministry of Labour, 2009a).

Similarly, the expatriate population of Riyadh represents the expatriate worker population in Saudi Arabia. The Riyadh region has more than one-third of the national expatriate population (Ministry of Labour, 2009b). In addition, the main characteristics of expatriates in Riyadh City are similar to their characteristics in the wider country, for the dominant nationalities, education levels, ages, top ten job categories and top industries in particular.

Based on the above-mentioned facts, the investigator is confident that the expatriate population of the study sample sufficiently represents the expatriate worker population in Saudi Arabia.

7.3 Limitations of the Study

There are some limitations of this study. The study included only male expatriates working in the private sector; female expatriates and children were excluded. If gender had been included as one of the variables, it would have been very difficult to obtain a sufficient number of participants due to the small number of female employees (98.30% of all expatriates in the private sector are male). Also, most of the females working in the private sector work in the healthcare sector and all medical and non-profit sectors were excluded from this study.

A further limitation is excised in the study approach, as this study did not include a qualitative method. The qualitative method could have helped to provide a better understanding of the influence of attitude and beliefs on access to medical care; although a further study could be undertaken in the future using this method as a means of elaborating on these factors.

Another limitation was that some companies were excluded from the study due to incomplete information (for example, address and contact number). These companies may have had specific characteristics that could have influenced the sample. Also, some workers were not captured by the survey method since they were not at work during the study for various reasons, including sickness absence during the data collection period.

Other sources of potential bias could be raised due to participants' fear of recrimination by their employers, which lead to misleading responses. However, actions were taken to increase both employers and employees belief in confidentiality and minimize this sort of bias. For example, an official letter and identification card from the Research Sponsor were provided, to reassure employers that their contributions would be for research purposes only and that the answers would be managed with the utmost confidentiality.

To gain employee confidence, many steps were taken including the action taken to gain the employers' confidence (further detail in Table 4.3, Chapter 4 - page 97). Research Assistants administering the survey were selected from the same dominant nationalities and languages of the private sector workers, so that the survey could be understood and answered in their language.

Finally, the study is a cross-sectional study, which may have increased bias with respect to the time ordering of events. In the other words, cross-sectional study cannot tell the cause and effect relationship between the independent and dependent variables. Throughout this study we have referred to the influence of health insurance on access to medical care, but it is accepted that in any cross-sectional study, it is impossible to infer a cause/effect association between independent variables such as health insurance and a dependent variable such as access to medical care. It does seem reasonable to assume the differences in access to medical care between groups with different levels of health insurance, and this in some way reflects the influence of health insurance on access medical care.

7.4 Strengths of the Study

One, this thesis used three access measures to assess the impact of health insurance on access to medical care. These measures provide information regarding access to a regular healthcare setting (Access 1), perceived needs (also called unmet needs) (Access 2), and the actual use of healthcare (Access 3). Many studies on access measures in developing countries have focused on utilisation of medical care. However, utilisation in most developing countries, specifically for the minorities in these countries, has many challenges, not only due to difficulties in accessing medical care, but also in ensuring that the access to medical care achieves its objective. Therefore, measuring utilisation is insufficient on its own. It is recommended that as a minimum, three measures are used, in order to gain better information about perceived needs, continuity "Access 2", access to a regular provider "Access 1", and actual use of medical care "Access 3" (Hargraves and Hadley, 2003).

Two, this thesis used a novel approach by examining the combined effect of having health insurance and the employer's willingness to pay healthcare expenses before CEBH, which other studies did not do. This is an influential factor in assessing the impact of CEBHI on access to medical care regardless of the employers' previous behaviour towards payment of healthcare. It also allowed assessment of the impact of insurance on whether employers changed their method of payment. Prior to CEBHI, expatriate workers accessed medical care via different means, so the impact of health insurance must be considered in light of the Previous Method of Paying for Healthcare (PMPHC), prior to the implementation of CEBHI. The investigator is unaware of any study that not only investigates the impact of health insurance on access to medical care, but also compares that influence of insurance on access to medical care with other ways of sponsoring healthcare expenses, such as employers paying directly or reimbursing their employees. This comparison will assist any policy maker to assess the actual impact of insurance on access to medical care versus the influence of other ways that employers sponsor medical care expenses.

Three, this study was fortunate enough to take place immediately after the implementation of CEBHI. A previous study that attempted to measure the impact of health insurance could not do this because the insurance scheme had not yet been implemented, thus only the expectation of the impact was measured (Hatem, 2011). The timing of this study also enabled the measurement of the influence of PMPHC on the access to medical care.

Four, this study used a distinctive technique that isolates the education level of employees and the job's education requirements in order to assess whether access to health insurance is associated with the employee's personal characteristics or education (personal characteristics), or the job's education requirements (workplace characteristics). There are studies that consider the level of a job in the company (such as manager or technical position), but these are not linked to the education level of the employees when reviewing access to health insurance. This is significant in an expatriate-dominated workforce like that of the GCC, especially with the governments' movements to limit the number of jobs available for expatriates. This action from the GCC governments has led to the majority of expatriate workers changing their jobs to the field of 'labour' although coming from jobs in their home countries that required higher skills (Hodaythi et al., 2006). The difference between the influence of education (personal characteristics) and job's education requirements (workplace characteristics) on access to medical care has never been studied before. This difference is crucial, because some expatriates can have a high education level but work in a job that has low skill requirements. Therefore, using this technique allows for any future study to be compared nationally or with neighbouring countries.

Five, this thesis is the first study to investigate the influence of health insurance on access to medical care for expatriate workers in the Kingdom of Saudi Arabia as well as GCC countries. If the CEBHI is a good model and proves to be an effective scheme that assists expatriates to increase access to medical care, it could be adapted by other GCC countries. For example, Qatar has recently developed a new strategic plan, which mentioned their intention to implement a health insurance scheme, following lessons learned from her neighbours (Ministry of Health Qatar, 2011). In addition, one of the main national strategic plans in Oman was to use health insurance as a tool to reduce health expenditure (Ministry of Health Oman, 2006), but the strategy did not identify any means of achieving this objective. In addition, there was an article citing the main options for financing healthcare services, but the authors did not identify which financing method was more appropriate for Oman to implement (Al Dhawi et al., 2007). Furthermore, the Kingdom of Bahrain is in the examination stage of looking at different options of health insurance as a means of increasing access to medical care (Ministry of Health, 2011). Kuwait's national healthcare system is also in the process of reforming its healthcare under the new Kuwait Health Assurance Company (KHAC), that will affect both nationals and expatriates (Marius, 2011). If the CEBHI proves to be an effective scheme that assists expatriates in increasing access to medical care, it could be adapted for use by neighbouring countries, in light of the common characteristics amongst GCC countries. These characteristics impact how GCC countries should finance healthcare and set their health insurance scheme. The expatriate population dominates the total GCC population and this raises the question of how to find a mechanism that insures that expatriates have the right access to medical care whilst expatriate employers bear the responsibility for healthcare expenses.

Finally, the investigator is unaware of any study that classifies the economic sectors based on the International Standard Industrial Classification (ISIC) of all economic activities. Since there is no standard system in use, ISIC was used in order to enable easy comparison of the findings of this study with studies from other countries in the future, and to ensure comprehensive coverage of all sectors.

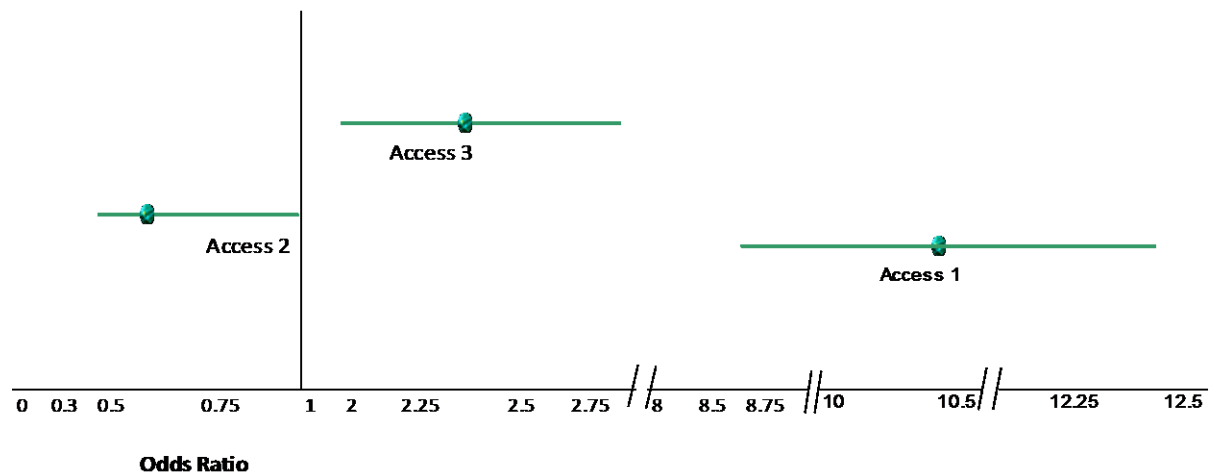
7.5 Overall Influence of Health Insurance

7.5.1 Access to Usual Medical Care Setting (Access 1)

In this study, insured expatriates were 10 times more likely to have access to usual medical care than uninsured expatriates (see Figure 7.2). This finding is consistent with other studies that reported that health insurance increases access to the usual medical care setting, even

for minorities (Mahmoudi and Jensen, 2012, Lillie-Blanton and Hoffman, 2005, Waidmann and Rajan, 2000b, Kasper et al., 2000).

Figure 7.2: The Overall Influence of Enrolment in Health Insurance on Access to Medical Care Measures (95% C.I (OR))



(Source: Table 6.5, Table 6.6, & Table 6.7)

However, others argue that in order to assess the actual impact of availability of health insurance on access to medical care, this impact must be linked to the type of health provider as well as the quality of services available (Starfield, 2008). In the Saudi Arabian context, primary healthcare services suffer from both poor quality and limited available services (Al-Ahmadi and Roland, 2005). In addition, access to usual medical care setting alone is probably insufficient measure of access to medical care for three reasons:

First of all, one of the objectives of the thesis was to study the impact of health insurance on access to medical care. Access to medical care must be linked to the medical services that CEBHI defined in its benefits package. As illustrated in Chapter 2, section 2.8, the definition of access to medical care is a multifaceted concept that continues to evolve over time due to changes in healthcare structure (relationship between healthcare providers, health insurance, and purchaser), health policy, the environment, the targeted population and infrastructure. In this thesis access to medical care is measured according to the main services that CEBHI covers. One of the services CEBHI offers is access to Specialists, if required, as well as any diagnostic equipment required (see Chapter 3, section 3.7.6). Therefore, access to usual care medical care partially explains access to preventive care as reported by many studies (Abrado-Lanza et al., 2004, Sambamoorthi and McAlpine, 2003) or primary care services as reported by other studies .

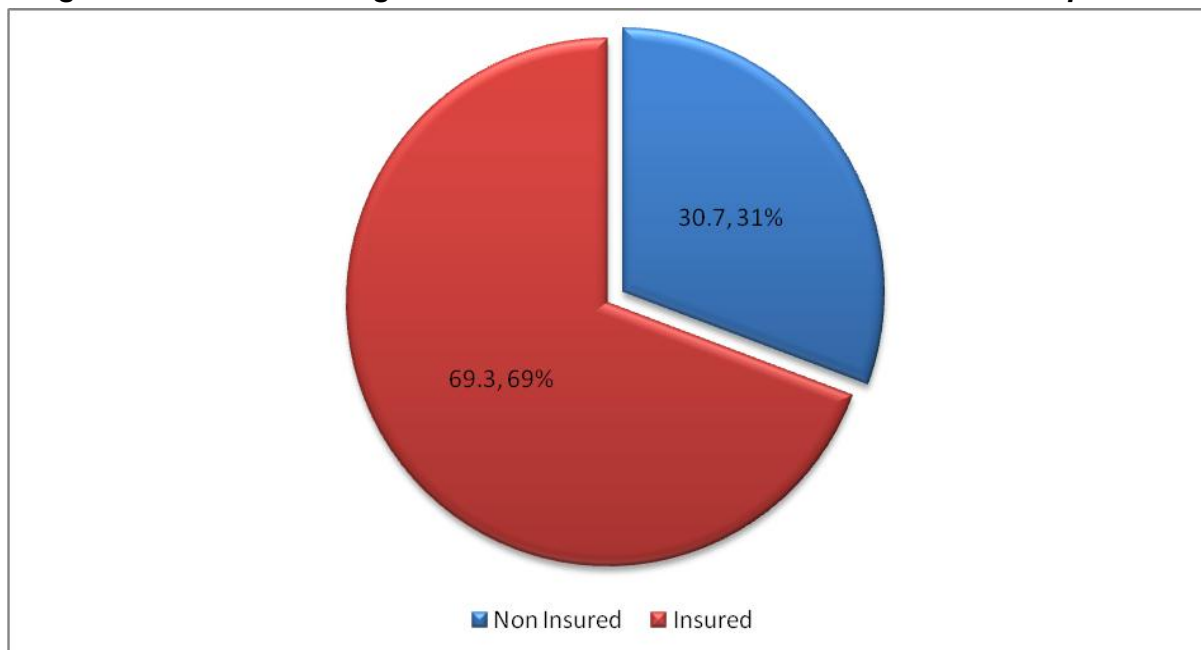
Second, many studies reported that immigrants do not have a utilization problem in regard to primary care (Szczepura, 2005, Smaje and Le Grand, 1997, Stronks et al., 2001, Nielsen et al., 2012), but that minority populations have poorer access to tertiary medical care (Alam et al., 2012, Sokal, 2010, Worth et al., 2009, Elkan et al., 2007). Therefore, the second access measure (inability to access medical care) helps to determine if there is an access problem besides the access to usual or preventative care. This question asks about access to the right Physician, the right equipment (for a specific test), and not only the participant's opinion, but also Doctor's opinion, if the case required a Specialist (see section 4.11.2).

Third, some studies report that access to usual medical care and Physician visits have considered these two access measures as one of the limitations of their analysis (Mahmoudi and Jensen, 2012). Aside from measuring access to usual medical care and utilisation of medical care, this thesis has measured the inability to access medical care, as it is documented in many official reports on access to care, often for minorities (AHRQ, 2007). There is further explanation of these access measures below.

7.5.2 Inability to Access Medical Services (Access 2)

Insured workers are 42% less likely to be unable to access medical care when compared with uninsured workers (see Figure 7.2). This finding is consistent with other studies, where insurance is reported to increase access to medical care and reduce disparities in access, particularly for minorities (Hargraves and Hadley, 2003).

Figure 7.3: The Percentage of Distribution of Insured versus Uninsured Population

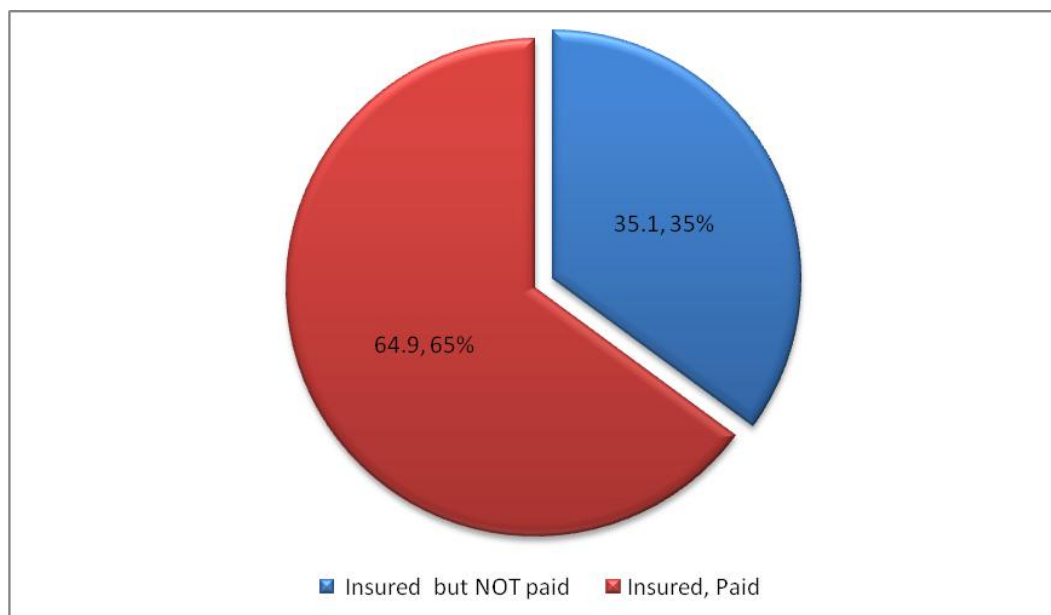


Chapter 7: Discussion

The thesis findings must be understood in light of the fact that 69.3% of those sampled are insured (see Figure 7.3). The insured employees whose employers paid their medical care expenses prior to CEBHI made up 64.9% of the insured population in the sample (see Figure 7.4). In other words, the impact of insurance on the whole study is complex; consideration must also be given to the impact of paid healthcare expenses prior to CEBHI upon the positive impact of insurance. However, whilst the odds ratio for Access 2 is more than 0.5, the confidence interval (95%) almost includes 1 (see Figure 7.2). Table 6.1 and Figure 6.1 (pages 134 & 136) indicate that Group B (insured but not paid medical expenses prior to CEBHI) have poorer access (Access 2) than Group C (uninsured but paid medical expenses). Therefore, although there are some indicators that insurance has an influence on access to medical care, we must be conservative when making general statements about this, as the confidence interval is very close to 1.

In addition, different studies argue that health insurance coverage alone is insufficient for assessing the impact of insurance on access due to the influences of other factors, such as differences in culture, linguistic differences, and other socio-demographic or job characteristics (Zuvekas and Tallaferro, 2003, Fiscella et al., 2002). Therefore, in the final model, the odds ratio of access to usual care was adjusted for these factors. In this study, workplace and personal characteristics were used to adjust for these variables, and this will be further discussed in detail in 7.8 and 7.9.

Figure 7.4: The Percentage of Distribution of Insured based on PMPHC



7.5.3 Utilisation of Medical Care (Access 3)

The overall effect of enrolment in CEBHI is increased utilisation of medical care. Insured expatriate workers are 10 times more likely to have seen a Physician within the last year compared with uninsured workers, regardless of the employers' previous payment methods (see Figure 7.2). The study findings support evidence from other studies from the United States (Kasper et al., 2000, Weinick et al., 2000) and Australia (Colombo and Tapay, 2004). However, the study findings are not consistent with a study from Belgium since they reported that insurance did not influence utilisation of medical care (Schokkaert et al., 2009). The different findings in regard to the impact of insurance on utilisation of medical care must be linked to the role of insurance (Thomson and Mossialos, 2009) and the difference in quality of healthcare between the public and private sectors. For example, the role of private health insurance in Belgium is to provide supplementary⁴⁰ medical services for dental and drug services. In addition, there is no difference in the quality of services between public and private healthcare services, and the waiting list is negligible in Belgium (Schokkaert et al., 2009). Private health insurance impacts positively to expedite access to hospital care in Australia, because this feature is one of the expected roles of private health insurance in Australia (Colombo, 2003). However, this feature is also likely to impact on the equity of care due to the difference in waiting times for the insured and uninsured.

The findings are also consistent with outcomes of studies in developing countries. One study from Indonesia reported that private health insurance increases utilisation of medical care (Hidayat, 2008). However, insurance is not the only factor associated with Doctor Visits. A study from Colombia found variations in access to medical care were due to variations in peoples' income (Alvarez et al., 2011). Therefore, these factors and their association with access to medical care must be considered before concluding the influence of insurance on utilisation of medical care.

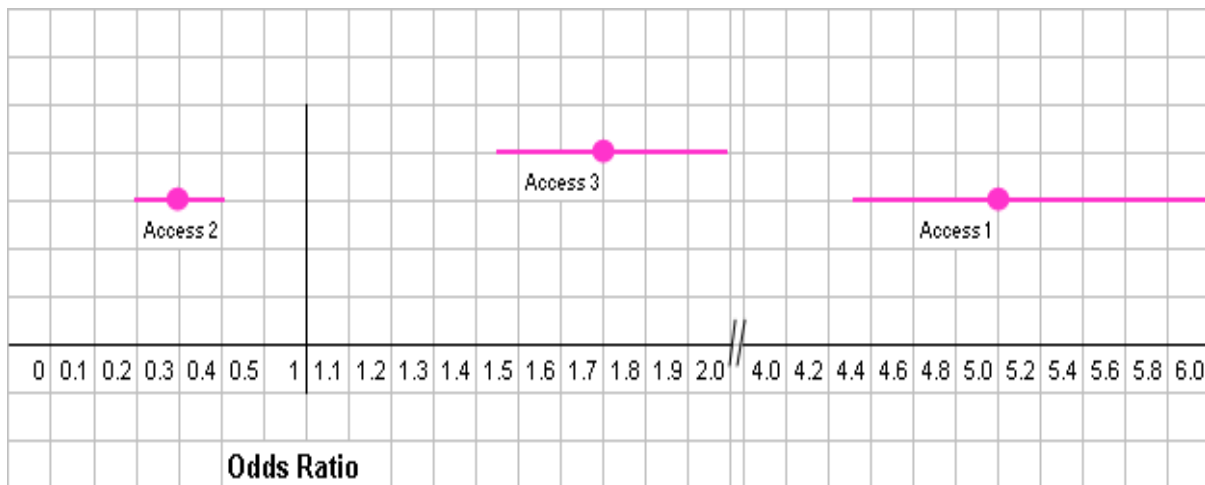
In the following section, the overall influence of PMPHC on access to medical care will be reviewed, followed by the overall influence of insurance combined with PMPHC. The influence of insurance and PMPHC will also be discussed, after adjusting for personal and workplace characteristics, as illustrated in the conceptual framework (Figure 4.2 - page 122).

⁴⁰ Supplement health insurance can be used to expedite access to different medical services and increase consumer choice for different medical services (see section 2.5, Chapter 2 for more details).

7.6 Overall Influence of Previous Method of Paying for Healthcare (PMPHC)

Expatriate employees with employer-paid medical care expenses prior to CEBHI had increased access to medical care. They reported 5 times the access to usual care compared with those whose employers did not pay healthcare expenses (see Figure 7.5). Employers who paid healthcare expenses reduced inability of access to medical care by 75%. Such employees were also 1.5 times more likely to have visited a Physician in the past year as measured by access 3 (see Figure 7.5).

Figure 7.5: The Overall Influence of PMPHC (95% C.I (OR))



(Source: Table 6.2, Table 6.3 & Table 6.4)

Few studies have considered the employer's payment of healthcare expenses and its impact on access to medical care. There are many reasons for this, one of which is that the workers sometimes obtain their healthcare benefits outside the workplace. For example, in the United Kingdom and Canada, health insurance is independent from a job, although employers in both countries can provide health insurance as a supplement to the benefits that are not covered by Medicare, the case in Canada, or employers may provide alternative health insurance, as they do in the UK (Stanton and Rutherford., 2004). Therefore, employer-paid reimbursements may not be an option when paying for healthcare in these countries or other countries that implement social health insurance such as most European countries, because access to medical care is mandatory through their healthcare systems and strictly defines these relationships. However, in the United States where private health insurance dominates the market, employers or employees can enrol in a health insurance plan. Payment for medical care can be provided via health plans, such as the FSA (Flexible Spending

Account)⁴¹ or the HRA⁴² (Health Reimbursement Account) (Feldman and Schultz, 2001, Pilzer, 2008, U. S. Bureau of Labor Statistics, 2008).

Employers who pay medical care expenses independently from health insurance have a positive impact on all access to medical care measures. However, the impact of the responsibility upon employers to pay healthcare payments can be catastrophic for small employers (Feldman and Schultz, 2001). In this case the employers' preference is usually to deal with a limited number of healthcare providers: it is easier for them to reduce the cost of reimbursing many different healthcare providers, and enables them to have an agreement in advance with a limited number of healthcare providers (Casto and Layman, 2006). Such employers can request that their employees use a limited number of providers, explaining the influence of these methods on access to care.

There are some studies that support the use of health plans, such as HRA, which provides an advantage by giving access to medical care for employees whilst reducing the cost of healthcare expenses for both employers and employees (Pilzer, 2005). However, the investigator is unaware of any evidence to suggest it has the same outcome for minority groups.

7.7 Overall Influence of Health Insurance and PMPHC (Comparison of Groups A, B, C, D Unadjusted) on Access to Medical Care

7.7.1 Characteristics of the Four Groups

To assist the interpretation of results regarding the influence of health insurance on access to medical care, the different ways expatriates accessed medical care prior to CEBHI were used as a guide to classify the population into the study groups. Those employees whose employers never paid health expenses and remained uninsured post implementation of the CEBHI (Group A), those employees whose employers never paid their health expenses but were insured with CEBHI (Group B), those employees whose employers paid their health expenses prior to CEBHI but were uninsured despite CEBHI (Group C), and those whose

⁴¹ FSA is "a tax shelter for out-of-pocket spending on medical care. FSAs allow employees to select a specific amount of money that is deducted in equal instalments from their pay before taxes are withheld. As employees incur out-of-pocket medical and dental expenses that are not covered by insurance, they submit claims to their benefits department for payment from the FSA. By the year's end, they must either spend all the money in their account or lose it"

⁴² Is a tax-advantaged arrangement (not an account) that employees can use to receive reimbursement for qualified medical expenses, including health insurance premium. HRAs must be 100% funded by employers.

employers paid their health expenses and have insured them during the implementation of CEBHI (Group D).

Based on this classification of expatriate workers, there are two insured groups (B and D) but with different PMPHC. The impact of insurance on access to medical care for these two groups was studied in three particular ways:

One: the impact of insurance on access to medical care for Group D, helped determine that private health insurance increased access to medical care for the Saudi expatriate population, considering their workplace and personal characteristics⁴³. In the other words, since the only real difference-for Group D is the method of insurance payment, we can see the insurance influence against the other forms of payment (cash or other means of payment such as Group C).

Two: the impact of insurance on access to medical care for Group B, helped determine that enforcing employers to provide private health insurance with unified benefits packages similar to CEBHI, had a moderate impact on increasing access to medical care for the expatriate population.⁴⁴ In the other words, Insured Group B presents a good example in a case where employers are neither willing to pay for medical care expenses, nor willing to provide health insurance to their employees, but they were forced to do so, and this alone helps increase employee access to medical care?

Three: there is disparity between groups B and D regarding access to medical care, and this will be discussed at the end of this section.

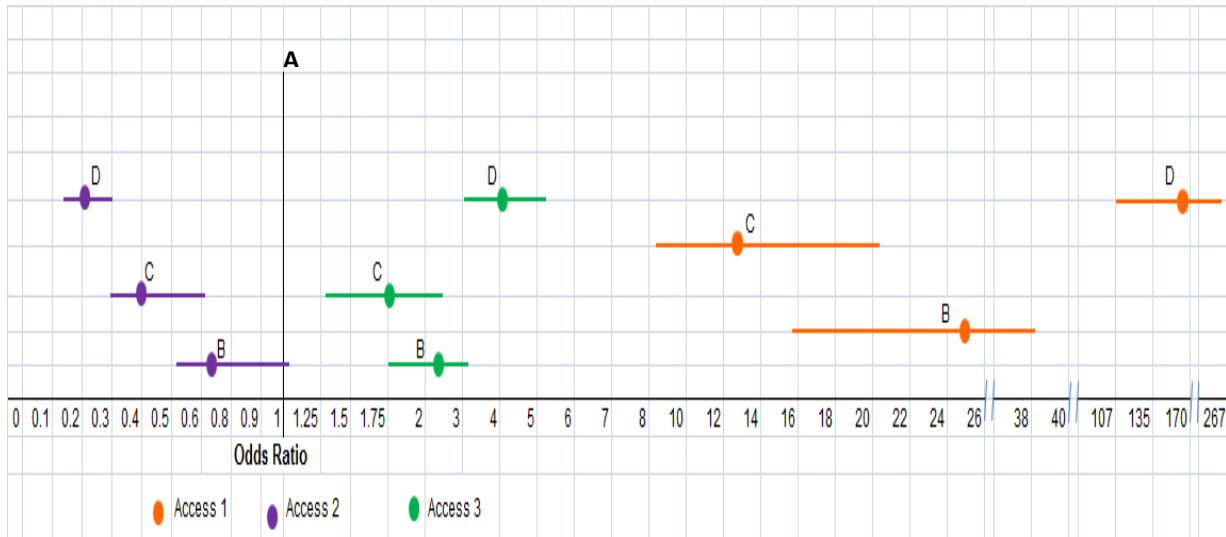
In addition, these three points support the answer to the thesis hypothesis that implementing compulsory private health insurance would increase access to medical care for the expatriate population. The impact of insurance on access to medical care was compared for the two uninsured groups (Group A and C). Group A is the reference group in the logistical analysis, so is used as a reference for all the access comparisons amongst the other three

⁴³ Workers in Group D have access to medical care before CEBHI but may not be though health insurance form “see Figure 2.4 and Figure 5.1”

⁴⁴ Workers in Group B did not have access to medical care before CEBHI since their employers do not have pay their medical expenses “see Figure 2.4 and Figure 5.1”.

groups. In addition, Table 6.1-page 133 was used to compare the groups with one another, as these comparisons demonstrate their similarities and differences and the combined impact of both insurance & PMPHC on access to medical care.

**Figure 7.6: Overall Influence of Health Insurance and PMPHC
(Comparison of Group B, C, D with Group A) (95% C.I (OR))**



(Source: Table 6.8, Table 8.9, and Table 6.10)

7.7.2 Discussion on the Overall Impact of Insurance and PMPHC on the Four Groups

Access to Usual Medical Care Setting (Access 1)

Health insurance has a substantial impact on access to usual medical care (Access 1) regardless of the PMPHC (see Figure 7.6). In other words, health insurance increases access to usual medical care for the insured workers in Groups B and D. Comparison with uninsured workers in Groups A and C demonstrates that the insured groups have statistically significant better access to usual medical care setting (see Table 6.1-page 133). In addition, this finding is supported by the other study findings that overall insured people have a better access to usual medical care setting than uninsured as illustrated in Table 6.5-page 137. However, this finding does not support the view of Hayward and others that uninsured people do not have usual medical care because they do not want to (Hayward et al., 1991), because the CEBHI is not elective like ESI. CEBHI is a compulsory scheme so people do not have the option to remain uninsured. In the other words, as CEBHI is a compulsory scheme, the impact of CEBHI on usual medical care is not undertaken on people's preferences, which Hayward and others claim.

This finding is consistent with other studies that noted strong evidence that health insurance coverage has a substantial influence on gaining access to usual medical care (Access 1) (Medicine, 2001, Ayanian et al., 2000, Jovanovic et al., 2003, Mahmoudi and Jensen, 2012, Lillie-Blanton and Hoffman, 2005, Kasper et al., 2000). However, the magnitude of the impact of insurance on access to medical care may not be the same amongst these studies. This study showed that the influence of insurance on access to medical care is more for Group D. As shown in Figure 6.1-page 135, amongst insured employees, the employers who previously paid employee medical expenses, increased the access for employees (Group D).

Expatriate workers in Group D (insured and paid) had 169 times more access to Access 1 than Group A (uninsured and not paid). However, Group B workers (insured but not paid) reported 24 times more access to the usual medical care setting (Access 1) than Group A. So although the workers in insured Groups B and D have significantly better access than the uninsured Groups A and C, the magnitude of the impact for Groups B and D is not the same.

Inability to Access Medical Services (Access 2)

The influence of insurance on Access 2 for insured Groups B and D is different (see Figure 7.6). On the one hand, health insurance noticeably reduces the inability to access medical care (Access 2) in Group D by 78% when compared to Group A. However, on the other hand, although health insurance coverage for Group B is the same as Group D, there was no statistical significance between Groups A and B, though health insurance reduced the inability of access to medical care in Group B by 23%.

In addition, expatriate workers who are uninsured but whose employers pay their healthcare expenses (Group C), have a reduced inability to access to medical care of 55% when compared to Group A (see Figure 7.6). Therefore, Access 2 is more readily available to workers in Group C than those in Group B. This fact supports another study's findings that some people not having insurance are able to access medical care when it is needed (Davis, 1997). Although Davis did not determine how they could access medical care, this study findings stress the positive impact of employer-paid medical care and this payment leads to better access than health insurance (the disparity in access between Groups B and C is discussed below).

However, when both factors of insurance and employer willingness to pay medical care expenses such as in Group D are taken into account, Group D has better access to medical care compared to Group C. The positive impact of insurance for workers in Group D in

reducing their inability to access medical care is consistent with literature findings, although those studies did not consider whether employers had paid employee medical expenses before insurance was implemented (Hargraves and Hadley, 2003).

The variation of the impact of insurance on access between insured Groups B and D, provides an indication that insurance might help increase access to medical care but may not be the only factor, and partially indicates that the employers characteristics such as PMPHC and other factors such as workplace characteristics of insured expatriates also has a substantial influence on access to medical care, as illustrated shortly. In addition, the different influence of insurance on Groups B & D might explain the controversial findings of Shi and others, that minority insured groups were less likely to report difficulty in accessing medical care than the White population (Shi et al., 2010) because Shi and others did not identify the employer characteristics, and only included employment status (employed versus unemployed).

Below further detail is provided regarding the disparity in Access 2 for workers in Groups B and C, and why employer-paid medical care has a stronger influence on access to medical care, than insurance alone.

Access 2 is the only access measure that links access to medical care with the basic coverage of CEBHI as stated before. The basic coverage of CEBHI includes access to medical services and determines if there is an obstacle of these services. Based on Access 2 measures, Group B employers did not pay employee medical expenses before CEBHI, and they may have minimized their healthcare expense whilst workers were still officially insured. In the other words, employers not paying healthcare expenses before CEBHI employed various approaches in order to avoid compliance to the government's enforcement of insurance law. For example, enforcement of insurance might lead employers of Group B workers to have contracted insurance with poor quality insurance companies that did not commit to providing services according to CEBHI benefits coverage (insurers has been reported as the most frequent complaints received) (CCHI, 2009a, CCHI, 2008). There are reports that some employers pay insurers 'under the table' payments to renew employee residency permits, without the employees actually having health insurance or providing limited insurance with cheap low quality of care (Alsaedi, 2011). These reports require further investigation to assess the volume of this fraud, and the impact this has on private sector expenditure. However, these reports as illustrated in section 3.7.1.2, support the fact that private health services has not coped with the huge increase in demand on the private sector. Therefore, although the workers in this group are insured, they have challenges for

Access 2 because some of their employers did not provide the actual benefit coverage required by the CCHI.

In addition, workers in Group B did not receive medical care expenses through their employers prior to CEBHI and the chances of them being aware details of the insurance coverage benefits, is less due to their limited ability to read and write in the Arabic or English languages. Approximately 73% of respondents reported they were unaware that CEBHI provides comprehensive coverage and they did not have the correct knowledge of the maximum fees they must pay for services covered by CEBHI. A supportive study dedicated for Nepalese workers in some of the GCC countries, indicates that lack of adequate information of their rights, including their rights in relation to health services, was one of the reasons for poor access to medical care (Joshi et al., 2011). Although the majority reported their capability of communicating in Arabic or English, linguistic barriers do not only relate to the ability to speak English, but also to read and write it (Szczepura, 2005), which may explain the Expatriate population's low awareness about CEBHI. Information about the CEBHI is available in the English and Arabic languages only, at the CCHI website.

Another contributing factor to the fact that uninsured Group C has a better access in Access 2 than insured Group B, is the is evidence that direct payments to healthcare providers reduces reimbursements and co-payments for employees (Casto and Layman, 2006). It is therefore likely that co-payments for the insured Group B are a contributing factor. This view is also supported by a recent study from the UAE, which identified that the different access between nationals and expatriates is due to the difference in their co-payments, where the co-payment for expatriates is higher (Koornneef et al., 2012). In this study, only 1.2% of workers in Group B earn more than SR6000, and almost three-quarters earn less than SR2000, whereas Group C do not pay anything because their employers pay their medical expenses. As illustrated in section 3.7.6, Chapter 3 regarding the CEBHI's co-payment, if expatriates have to pay the maximum amount of co-payment (mainly the fees for consultants or rare medical specialist fees), it is likely that some Group B workers would have difficulty paying the co-payment.

On the other hand, although Group C workers are not insured, their employers are obligated to pay their medical expenses when required. There is also a study that demonstrated that employer-payment of medical expense improves access to medical care for workers, but this method of payment can be catastrophic for small employers (Feldman and Schultz, 2001). However, more than two-thirds of Group C workers work for large companies, which make

direct payment to these employers less catastrophic (see Table 5.2, Chapter 5). In effect there is a greater pooling risk with larger companies.

Utilisation of Medical Care (Access 3)

Health insurance increases utilisation of medical care for insured workers in Groups B and D (see Figure 7.6). According to the study findings, workers in Group D were 4 times more likely to utilise medical care and workers in Group B were more than twice as likely to utilise medical care when compared with Group A. This finding is consistent with other study findings, that insurance increases utilisation of medical care (Mahmoudi and Jensen, 2012, Weinick et al., 2000).

However, this study has another finding that suggests that utilisation of medical care may be associated with something other than health insurance alone, because there is a significant difference in utilisation amongst insured Groups (B & D) and the utilisation of medical care between workers who receive payment for medical expenses and are not insured (Group C) and insured workers without previously paid medical expenses (Group B); it is statistically insignificant, that a worker in Group B has better utilisation (see Table 6.1). This insignificant difference in utilisation between Groups B & C reduces confidence about the role of insurance in increasing utilisation of all medical care services (both primary, secondary, and tertiary care) but insurance might increase utilisation of primary healthcare, which is the view of Stemkowski (2008), Zuvekas (2003), and Sox (1998), who suggested that utilisation of medical care increases, not because of insurance, but because of availability of primary healthcare (Stemkowski, 2008, Zuvekas and Tallaferro, 2003, Sox et al., 1998). This view is supported on the one hand, by earlier reported findings that Group B workers have a challenge in accessing Access 2, and on the other hand, the significant impact of insurance in increased access to usual medical care (primary health care) as stated before (insignificant different in access 1 between insured Group B&D as stated in Table 6.1). Group B will have improved Access 2 if they have good access to specialists or tertiary medical care. The investigator's suggestion that the impact of insurance on Access 3 relates more to utilisation of primary care rather than tertiary care, is supported by many reports that immigrants do not have a utilisation problem in regard to primary care (Szczepura, 2005, Smaje and Le Grand, 1997, Stronks et al., 2001, Nielsen et al., 2012), but that minority populations have poorer access to tertiary medical care (Alam et al., 2012, Sokal, 2010, Worth et al., 2009, Elkan et al., 2007).

To conclude, insurance increases utilisation of medical care for insured workers regardless of their employers' previous payment methods prior to CEBHI. So workers in Group B

reported higher utilisation of medical care than Group C, but the difference in their utilisation is not statistically significant (see Table 6.1). One way of understanding the disparity in Access 3 between workers in Groups B and D as well as the similarity between workers in Groups B and C, is that Group B has higher access to usual medical care, which indirectly increases the utilisation of primary healthcare services, but not necessarily the utilisation of required specialist or tertiary medical services. This view is supported by the challenge that workers in Group B have in regard to access 2 (access to unmet medical needs).

The remaining question is why there is disparity in access to medical care between Groups B and D for all access measures?

There is a difference between Groups B and D in their PMPHC. This study has emphasised, the key role of employers in accessing medical care for employees, particularly for the expatriate population. There are many studies, usually from developing countries, where employers were the main barrier for minority worker limited access to medical care, due to withholding the insurance (Martin, 2004, Hu, 2010) or medical care cards (Mahipala et al., 2010) since majority of the expatriate population are low-income and a sizeable population of Group B (more than 72%) earns the minimum wage and has limited pecuniary benefits to be traded off after the implementation of CEBHI. Their employers have limited options after the enforcement of CEBHI. These options include not providing health insurance coverage, providing it with limited coverage but not according to CEBHI, or deducting it from the employee's wages. These options have been supported and analysed by a recent study (Vistnes and Selden, 2011).

Regardless of how employers dealt with the additional high cost of premiums, it is clear that Group B did not receive the same benefits coverage as Group D. A recent study of the insured population found that the disparity in benefits coverage is the main reason for the disparity in their access to medical care (Al-Osaimi, 2009). The benefits package is "not simply a list of services to which the participants are entitled, but is those services, and the means of accessing these services" (Kutzin, 2001). Access 2 is a direct indicator of the benefits coverage of the CEBHI and the employers of Group B may have found different ways to reduce the premiums by minimizing the benefits coverage as their natural response to cost containment, as one study reported (Blumenthal and Hsiao, 2005).

In CEBHI, the incentives for participating in the scheme are high for employers. Aside from losing their right to acquire expatriate workers, employers are subjected to financial penalties for not following the policy. Although the healthcare benefits package under CEBHI is

unified, cost considerations could explain some acts of employers to bypass the law, mainly those not used to paying medical care expense before CEBHI.

7.8 Influence of Insurance and PMPHC Adjusted for Workplace Characteristics

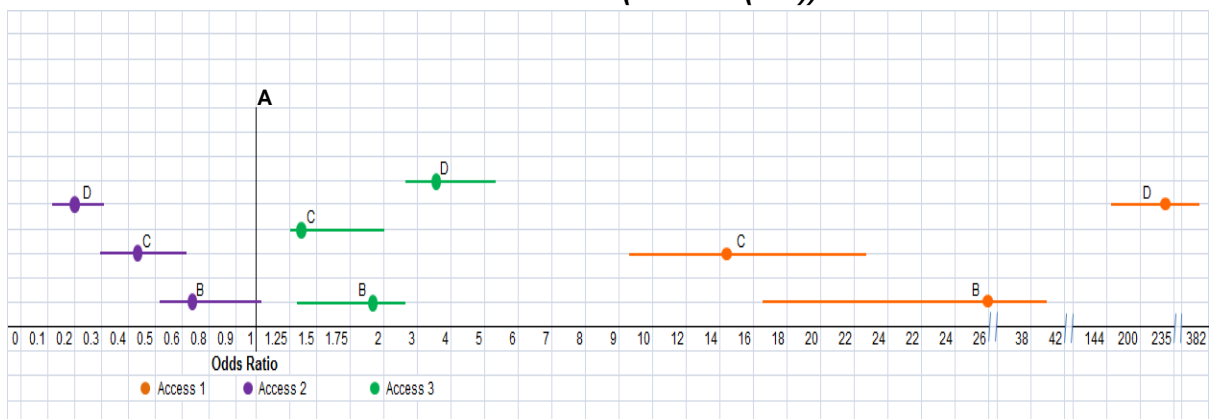
This discussion arises from the logistic regression analysis under model 2 (see Table 6.17, Chapter 6).

7.8.1 Access to Usual Medical Care Setting (Access 1)

When we adjust the odds ratio of insurance and PMPHC on access to medical care for workplace characteristics, workplace characteristics have a very high significant influence (p-value <0.001) on the model odds ratio. The major increase in the model was from those who are insured and paid medical expenses (Group D) from 169 to more than 234 (see Figure 7.7).

Appendix 3, section 3.1.1 illustrates the main variables under the workplace characteristics that influence access to usual medical care setting. The main variables that influence Access 1 will be elaborated shortly.

Figure 7.7: The Influence of Insurance and PMPHC adjusted for Workplace Characteristics (95% C.I (OR))



(Source: Table 6.11, Table 6.12 and Table 6.13)

7.8.2 Inability to Access Medical Services (Access 2)

Workplace characteristics have a highly significant influence on the model Block Chi-square (p-value <0.001). The impact of insurance and PMPHC on the workers in Group B loses some of its association (p-value change from 0.059 to 0.121 see table 6.12). However, the impact of insurance and PMPHC on access to medical care did not significantly affect Groups C and D. Appendix 3, section, 3.1.2 illustrates the main variables under workplace

characteristics that influence the three accesses measured. An elaboration of the main facts will be illustrated shortly.

7.8.3 Utilisation of Medical Care (Access 3)

The workplace characteristics also have a very high significant influence (p-value <0.001) on the impact of insurance and PMPHC on utilisation of medical care, but only alter the odds ratio slightly. However, when we adjust the model for workplace characteristics, the influence of insurance on utilisation reduces our confidence interval closer to 1 (p-value, changing it from very highly significant to significant, see Table 6.17 for more details). Below is an explanation of the main variables that influence access to medical care from workplace perspectives.

7.8.4 Interpretation

As illustrated in section 7.7, insurance helps increase access to medical care for expatriate workers, but the role of workplace characteristics is a very supporting factor. The main workplace characteristics that influence access to medical care, include job's education requirements, size of the company, economic sector, and the availability of sick leave (see Appendix 3, section 3.1). In general terms, these figures concur with other studies that job characteristics are as important as the influence of health insurance (Zuvekas and Tallaferro, 2003).

The study finds that expatriates working in specialist jobs (university education required) are 1.8 & 1.7 times more likely to have access to medical care than those in a job not requiring any education in regards to Access 1 and 3 respectively (see Appendix 3, section 3.1 & section 3.3). In addition, expatriate workers whose jobs required a university degree, have a 70% reduced inability of access to medical care when compared with workers in a job not requiring any education (see Appendix 3, section 3.2). As stated earlier, this study used a unique technique to isolate the education level of employees and the job's education requirements in order to assess whether access to health insurance is associated with the employee's personal characteristics or education (personal characteristics), or education requirements (workplace characteristics). In addition, the difference between the influence of an employee's education level and his job's education requirements on access to medical care has never been studied before. This difference is crucial to this study, because some expatriates have a high education level but work in a job that has low skill requirements, especially due to GCC governments' movements to limit the number of jobs available for expatriates. This action has led to the majority of expatriate workers changing their jobs to the field of 'labourer', though originating from jobs in their home countries that required

higher skills (Hodaythi, Tayb et al. 2006). The results of this study demonstrated that the job's educational requirements are more important for access to medical care than an expatriate's personal education. The higher the education required by the job (job required a university degree or education higher than high schools) the more likely expatriates have access to medical care. In the other words, the study finds that workers with jobs that required a university degree have better access than those in a job that required no education across all access measures⁴⁵ (see Appendix 3, section 3.1). According to study findings, employees working in specialist and professional jobs have better access (all access measures) than those working in an unskilled job with no education required. In addition, the job related education factor might also contribute to the disparity in access between Groups B & D, since almost 40% of workers in Group D, work in a job that is classified as specialist or professional, whereas only 19% of Group B workers have the same classification. Employers do not want to lose their highly skilled workers, so the job's education requirements and its very influential role on access to medical care is supported with other studies that emphasise the more critical the job for the employer, then the more likely employees are to be insured and subsequently have better access to medical care (Vistnes and Monheit, 2011, Fronstin, 2010). There are many studies that emphasise the importance of education alongside insurance to improve access to medical care, so the education explains the higher access to medical care (Mahmoudi and Jensen, 2012, Weinick et al., 2000, Zuvekas and Tallaferro, 2003). However, these studies did not determine if the influence of education was because it is used as a proxy for the criticality of the job or because it reflects the awareness of healthcare services, and subsequently increases utilisation of medical care services. This study supports the importance of the education because it reflects the criticality of the job and subsequently their importance to the employers

Another workplace factor that influence access to medical care is the employers' size. As appendix 3.1 (section 3.1.2, Access 2, and section 3.1.3, Access 3) illustrated, that employers having more than 50 employees, have better access in Accesses 2 & 3. Expatriate workers whose employers have more than 50 employees, have almost 50% reduced inability of access to medical care when compared with workers in a company that have less than 10 employees. In addition, the study finds that expatriate workers in large companies, are 1.7 times more likely to utilize medical care. The difference in employer size might also partially explain the disparity in access to medical care between insured Groups B

⁴⁵ Access 1, Access 2, Access 3

& D, since one study reported that an employer's size is one of the main factors that differentiates the generosity of insurance coverage (Zuvekas and Tallaferro, 2003). For example, the percentage of workers who work in a large company (more than 50 employees) is higher for Group D (more than two-thirds) than Group B (38%) (see Table 5.2). The percentage of workers who work with small employers (less than 10 employees) is higher in Group B (almost 24%) than Group D (13%) (See Table 5.2). The size of employer is one of the insurance policy premium determining factors for insurance companies; health insurance premiums are higher for small employers than for large employers. In addition, the majority of workers in Group D are in large companies, so they possibly have better benefits, including lower co-payments as this view is reported by other studies (Vistnes and Selden, 2011, Koornneef et al., 2012).

Finally, the study finds that the economic sector was one of the main influences on access to medical care for all access measures (Access 1, 2 and 3) (see Appendix 3.1). Workers from the Construction sector have better access to healthcare compared to other sectors in Saudi Arabia. This is inconsistent with some other findings; other studies have found that people in Manufacturing jobs are more likely to be insured than other sectors (Fronstin, 2010, Glied et al., 2003). On the other hand, the findings of this study were consistent with studies that showed workers from the Agricultural sector are less likely to be insured than those in other sectors (Hoffman 2004).

Inconsistency regarding the Construction sector could be explained by competition amongst business sectors in different countries. In the United States, the Manufacturing sector provides better insurance coverage compared to other sectors. The competition amongst companies in Saudi Arabia is stimulated by huge government budget spending, allocated for infrastructure development projects and other services; however these have constraints due to lack of qualified local manpower, and the government's behaviour pertaining to limited visas issued for acquiring foreign workers. In addition, the construction sector is the most competitive and growing sector in Saudi Arabia (Thoniyani, 2012). Furthermore, construction companies are the largest employers in terms of size and number of expatriates employed. Therefore, these companies could acquire better health insurance benefits with a limited increase in premium.

7.9 Influence of Insurance and PMPHC adjusted for Workplace, and Personal Characteristics

This discussion arises from the logistic regression analysis under model 3 (see Table 6.17).

7.9.1 Access to Usual Medical Care Setting (Access 1)

When the odds ratio of the impact of insurance and previously paid medical expenses on access to medical care was studied, the block model Chi-square of the personal and workplace characteristics was found to be very highly significant (p -value <0.001). However, the influence of workplace characteristics and personal characteristics together had only a slight influence on the odds ratio. Appendix 3, section 3.2, illustrates the main variables under personal characteristics that influence access to medical care. The change between model 2 and model 3 reflects the significant influence of personal characteristics and workplace characteristics.

Figure 7.8: Influence of Insurance and PMPHC adjusted for Workplace and Personal Characteristics (95% C.I (OR))



(Source: Table 6.14, Table 6.15, and Table 6.16)

7.9.2 Inability to Access Medical Services (Access 2)

The change between models 2 and 3 reflects the influence of personal characteristics and workplace characteristics on this measure of access. The model Chi-square block change was found to be very highly significant (p -value <0.001). However, the influence of workplace characteristics and personal characteristics together did not significantly affect the odds ratio.

7.9.3 Utilisation of Medical Care (Access 3)

Personal and workplace characteristics have an influence on healthcare utilisation. The increase in model Chi-squares between models 2 and 3 was very highly significant (p -

value<0.001). However, the influence of workplace characteristics and personal characteristics together did not significantly affect the odds ratio.

7.9.4 Interpretation

The influence of workplace characteristics and personal characteristics together did not significantly affect the overall impact of health insurances on access to medical care, yet had a significant influence on the model. The worker's age, marital status and health status, are the main factors that influence an expatriate's access to medical care. Marital status has a substantial impact on access to medical care for expatriate workers for all access measures (see Appendix 3.2). The influence of marital status on access to medical care has two dimensions. One, marital status affects the income of expatriates, mainly for those whose spouse works, as reported by one study (Vistnes and Monheit, 2011). Two, specifically for expatriate workers in Saudi Arabia, married status is a reflection of the job's education requirements for the worker because only professional workers can bring their families to Saudi Arabia. These associations between marriage and income and a job's education requirements, are examples of how job classification (workplace characteristics) and income (personal characteristics) influence access to medical care. Health status has a considerable impact on access to medical care for expatriate workers for both Access 2 and 3 (see Appendix 3.2). This finding is consistent with other utilisation findings, that perceive health status is the main predictor of medical care utilisation before and after health insurance implementation (Liao, 2008).

Interestingly, a personal characteristic reported in many studies as being influential on access to medical care, was found to be insignificant within this study. Language (both Arabic and English) did not have a significant association with access to medical care, despite more than two-thirds of expatriate workers being non-Arabs, rendering this study inconsistent with many others (Dyhr et al., 2007, Szczepura, 2005, Asian Development Bank, 2001, Alam et al., 2012). This could be attributed to the fact that many healthcare providers are not Saudis and most speak the common expatriate languages. There are healthcare providers in Saudi Arabia that specifically cater to Bengali, Urdu, Hindi or Malayalam speakers, aside from the Arabic and English language speaking providers. Furthermore, expatriate workers dominate staffing in the private healthcare sector, as 95.5% of Physicians, 96.2% of nursing, and 87.4% other clinical assistant staff (MOH, 2010a).

7.10 Overall Study Findings Compared with Related Literature

This is the first study in a developing country that has researched the impact of private health insurance on access to medical care, specifically for employment-based health insurance, as no empirical study has been conducted previously (Bassett and Kane, 2007). The location of the study and the target population are unique. Expatriate workers dominate the workforce in Saudi Arabia's private sector, yet they are considered a minority of the whole Saudi Arabian population.

Saudi Arabia is similar to other GCC countries in its characteristics. The three main characteristics of Saudi Arabia as well as GCC countries are: high-income governments, dominant expatriate populations, and under-development of the healthcare system, including healthcare financing. These characteristics impact on how the GCC countries finance their medical care services. The dominance of the expatriate worker population raised the question of how to find a mechanism that insures expatriates have the right access to medical care whilst employers bear the responsibility of healthcare expenses. All GCC countries are either investigating different health insurance plans but yet taking a decision about the final shape of their health insurance reform, or have implemented health insurance in one city such as Abu Dhabi. If the CEBHI is a good model and proves to be an effective scheme that assists expatriates to increase access to medical care, this model could be adapted by other GCC countries.

The specific role of health insurance is a critical factor for assessing whether or not health insurance influences access to medical care (Kutzin, 2001, Thomson et al., 2009). The influence of CEBHI in Saudi Arabia was expected to increase expatriate access to private healthcare services and reduce the demand on governmental healthcare services, thereby allowing better government spending on healthcare services. In other words, it is expected that CEBHI will provide financial protection for the participants and financial savings for the government, whilst securing access to medical care for expatriates.

From a financial perspective, even after CEBHI, government expenditure on health still dominates total health expenditure and private expenditure is lower than expected for the covered population. For example, private healthcare expenditure should be more than 30% of the total of health expenditure, but was only 22.4% in 2008 as explained in Chapter 3, the potential reasons behind low expenditure in the private sector. However, the impact of health insurance only helps to shift private healthcare expenditure from out-of-pocket payments to private insurance expenditure, since the impact of health insurance has reduced OOP

payments from 32.2% in 2006 to 28.4% in 2008, and increased private insurance expenditure from 26.2% to 36.7% between 2006 and 2008.

Even after implementation of CEBHI, the density of health personnel in Saudi Arabia per 10,000 people is still less than that of upper-middle income countries, as illustrated earlier. But whilst a reduction in OOP payments reduces the point of care payments to usual medical care facilities (i.e. primary care), it does not necessarily reduce the OOP payments for catastrophes, which usually come from inpatient or tertiary medical care services. In addition, it is not clear whether reduction of the OOP payments is compatible with the percentage of expatriates in the private sector, nor is it clear whether the reduction of OOP payments occurred for all expatriates or only those with high incomes. The average expatriate's salary in the private sector was less than USD270 per month (Central Department of Statistics & Information, 2008), so it requires further investigation in order to assess the co-payment and whether or not it is a barrier for expatriates accessing medical care after CEBHI. The disparity in access to medical care amongst insured workers (Groups B and D), as well as the better access of the uninsured Group (Group C) than insured Group (B) for Access 2, might be explained partially by the differences in their ability to pay co-payments, as illustrated in section 7.7.

The study has investigated the impact of health insurance on access to medical care based on the expatriates' diverse pathways of accessing medical care prior to the implementation of CEBHI. Therefore, this study did not only investigate the impact of insurance on access to medical care, but also the impact of insurance for expatriates whose employers did not pay medical care expenses prior to CEBHI. This approach allowed the observation of the impact of forcing insurance upon two insured worker groups (Groups B and D) with different employer backgrounds in regard to their responsibility of payment to medical care before the insurance law enforcement. This distinction between Groups B and D, will help assist the policy makers regarding what extent enforcing private health policy has helped to increase access to medical care. In addition, this approach allowed us to assess the actual impact of insurance on access to medical care versus other avenues of medical care payments. Therefore, we have a summary of four study groups of expatriates: A) not insured not paid, B) insured not paid, C) not insured paid, and D) insured paid.

This thesis took advantage of the spontaneous experiment and used an innovative methodology to investigate the combined effect of having health insurance and employer paid medical expenses. Generally speaking, the study found that health insurance has a significantly positive impact on access to medical care, particularly access to the usual

medical care setting (Access 1) for both insured groups, which is consistent with previous literature findings (Medicine, 2001, Ayanian et al., 2000, Jovanovic et al., 2003, Mahmoudi and Jensen, 2012, Lillie-Blanton and Hoffman, 2005, Kasper et al., 2000). The study's findings disagree with Hayward and other studies who report that uninsured people do not have access to usual medical care because they do not want it (Hayward et al., 1991). The CEBHI is compulsory and not elective like ESI, so expatriates do not have a choice about whether they are insured or not. In addition, the difference in access between Groups B and C, increases our confidence regarding validity of the influence of health insurance on access to usual medical care, since the insured Group B has better access to usual medical care (Access1) than Group C (uninsured but paid) not to mention higher than Group A (uninsured and not paid).

However, whilst some authors report the importance of the availability of usual medical care for access to medical care (Sox et al., 1998, DeVoe et al., 2012), this must be linked to the type and quality of usual medical care services (Starfield, 2008). In the Saudi Arabian context, usual medical care suffers from a poor quality of service (Al-Ahmadi and Roland, 2005). Therefore, even if health insurance has a positive impact on the availability of usual medical care, this access measure is insufficient to ensure CEBHI has achieved its objective of providing services according to health benefits coverage.

This study demonstrated that overall, the influence of employer-paid medical expenses on Access 2, was more significant than the influence of insurance (see Figures 7.2 and 7.5). This is supported by other findings of this study, that although the influence of insurance on Access 2 for Group B is positive, it was not statistically significant once adjusted for workplace characteristics (p-value 0.121) (see Table 6.12 - page 133). The large size of Group B (approximately 800 participants) increases our confidence of the insignificant relationship of the impact of insurance on Access 2.

There are many contributing factors that led to Group C workers having better access (Access 2) than Group B workers. Employers not required to pay medical care expenses before CEBHI (Group B), used different options to control the extra cost coming from insurance. This is likely to explain why some employers have an agreement with some insurers to provide reduced healthcare services than the unified healthcare benefits package in CEBHI, to limit the health insurance plan's accredited healthcare providers to one or two specific clinics. These points, are supported by the fact that 73% of expatriates reported not being aware of the benefits coverage under CEBHI, and this view is also supported by other study findings (Joshi et al., 2011). Furthermore, Group B worker has to pay co-payment fees

which could be a barrier from accessing medical care. From the other hand, Group C workers did not have to pay a co-payment and the size of their employer (66.3% more than 50 employees) provided them with the stability required for committed payment as the study indicates that the employer payment to medical expenses improves access to medical care, mainly for large employers (Feldman and Schultz, 2001).

With regard to Access 3, this study showed that although insurance increases utilisation of medical care as insured Groups B & D have higher utilisation to medical care than uninsured Groups A & C, this finding is consistent with other study facts from other developed countries (Schoen et al., 2010), and the study finding is consistent with other studies from developing countries such as in Indonesia (Hidayat, 2008), though the role of private insurance is different in all these studies and minority populations were not the focus of these studies. However, this study's findings are consistent with other studies, where the role of private health insurance is almost identical with the role of CEBHI, such as ESI in the United States of America (Mahmoudi and Jensen, 2012, Weinick et al., 2000).

However, two reasons decrease our confidence about the relationship between insurance and utilisation of medical care. Firstly, there is disparity in utilisation of medical care amongst insured groups (B & D) as Table 6.1 indicates, there is a significant difference between the two groups, with Group D being higher. Secondly, although insured Group B has higher utilisation than uninsured Group C, the difference between these two groups is statistically insignificant. The disparity in access3 between two insured Groups (D&B) and the similarity between Group B&C reduce our confidence about the actual impact of insurance on utilisation of medical care and might partially explain the moderate influence of insurance alone on utilisation of medical care, as this view is supported by other studies from Vietnam, China, and Colombia (Ekman et al., 2008, Lei and Lin, 2009, Alvarez et al., 2011) because if insurance alone has the only influence on utilisation of medical care, the influence of insurance on medical care utilisation will be significantly higher for Group B than Group C. However, the partial influence of insurance on access to medical care has had a positive impact when compared to those not insured and their employers previously not having to pay medical care expenses (Group A). Therefore, we view insured as a moderate influence and this has to be looked into considering that other variables have an impact, such as the employer's previous payment methods and the workplace and personal characteristics.

Furthermore, there is a variation in the impact of health insurance amongst the insured population (Groups B & D) in all access measures. These variations could be contributed to two main factors. One, Group B employers did not pay healthcare expenses before CEBHI,

therefore, the employers had to find ways to mitigate or substitute the extra cost obligations; this view is supported by other studies (Vistnes and Selden, 2011, Alsaedi, 2011). This study has brought to the fore the key role of employers in accessing medical care for employees, particularly for the expatriate population since PMPHC influences access to medical care as a contributory role in the influence of health insurance on access to medical care. In addition, the overall influence of PMPHC on access² is more than the overall influence of health insurance alone (see Figure 7.2 and Figure 7.5). There are many studies, usually from developing countries, where employers were the main barrier for minority workers' limited access to medical care, due to withholding insurance cards (Martin, 2004, Hu, 2010) or medical care cards (Mahipala et al., 2010).

Secondly, the different characteristics of workplace characteristics of Groups B and D and the impact of the extra cost of insurance for Group B versus Group D. Supporting evidence for this is the big influence of workplace characteristics on the odds ratio of Group D, increasing it from 160 to 230, whereas the odds ratio increase for Group B was very slight. On the other hand, the impact of insurance on Access 2 for Group B, lowers its association statistically after adjustment for either workplace characteristics or by both personal and workplace characteristics (P-value changes from 0.09 to 0.121, statistically insignificant). Access 2 reflects access to the main benefits under CEBHI. Therefore, the poorer Access 2 of Group B reflects discord between the insurance coverage of this group and the official coverage benefits according to CEBHI.

Although the workplace characteristics play small role in mediating the influence of health insurance on access to medical care (the odds ration did not change much in general), the model chi square increase was significant

Employer size, economic sector, job education requirements and employee marital status, were the main personal and workplace characteristics that influenced access to medical care, as illustrated in Appendix 3. These variables have differences in their presentation and partially explain the differences between Groups B and D. For example, the percentage of expatriates working for large employers is 70% and 38% in Groups D and B respectively. On the other hand, the percentage of workers working for small employers in Groups B and D is 24% and 13% respectively. A study reported that generosity of health benefits depended mainly upon the company's size, sector, and occupations (Zuvekas and Tallaferro, 2003). Therefore, the difference in access to medical care between Groups B and D could be explained partially by the differences in the generosity of their benefit packages. Although CEBHI has unified minimum benefits that should be covered and controlled by a government

institution, there are variations in access to medical care amongst insured expatriates (Groups B and D) for all access measures. These variations between Groups B and D might explain another study finding, that there is disparity in access amongst the insured population due to the differences in their coverage benefits (Al-Osaimi, 2009). In addition, the influence of benefits coverage on the impact of health insurance on access to medical care is supported by a separate study, that found a greater positive impact of health insurance on access to medical care in Massachusetts, than in New York, because of the difference in coverage (Long and Stockley, 2011).

Although the workplace characteristics play small role in mediating the influence of health insurance on access to medical care (the odds ratio did not change much in general), the model chi square increase was significant. One of the interesting finding this study is that this study did not find the reported language barrier to accessing medical care, even though language is identified as being one of the main barriers in accessing medical care, according to many studies (Dyhr et al., 2007, Szczepura, 2005, Asian Development Bank, 2001, Alam et al., 2012), and more than two-thirds of the expatriate workers were non-Arabic speakers. The insignificance of the language impact on access to medical care could be attributed to the fact that many healthcare staff are not Saudis and most speak languages known to the expatriates. Saudi physicians, nurses, and other applied medical staff working in the private sector, represent only 4.5%, 5.8%, 12.6% respectively (MOH, 2010a). There are also healthcare providers in Saudi Arabia that specifically cater to Bengali, Urdu, Hindi or Malayalam speakers, aside from the Arabic and English language speaking providers.

At the beginning of this thesis, the disagreement in literature regarding the role of private health insurance was elaborated. This disagreement could be due to the limited empirical evidence about the impact of private health insurance from developing countries (Bassett and Kane, 2007).

In this study, Group B represents the group of workers whose employers are forced to provide employee health insurance. However, enforcement of policy by the government is not the only means of increasing access, but the employers' previous payment of healthcare expenses is particularly important for non-citizen employees. This study shows that the employers' role in accessing medical care for the expatriate population is sometimes more valuable than the role of health insurance alone, as this evidence come from the influence of health insurance on access 2. However, enforcement of the CEBHI law mandating private sector employers to provide compulsory health insurance benefits to employees, has increased access to medical care for expatriate workers, mainly for access to the usual

medical care setting. However, access to the usual medical care setting is not as important as access to medical care measures, as it is applied in developed countries such as the United States, where primary healthcare does not suffer from low quality of services. In addition, enforcement of CEBHI increases access utilisation to medical care but yet the study's finding cannot identify if this is due to the utilisation of tertiary healthcare or only primary health care, as many studies reported. Although, workplace and personal characteristics play a small role in mediating the influence of health insurance on access to medical care, (the odds ratio did not change much), the model chi square increase was significant.

7.11 An Elaborated Framework/Model for Understanding the Complex Relationship of Health Insurance to Healthcare

This study provides useful evidence with which to expand the conceptual framework, which was based on Andersen's model (see Figure 7.9). Although Andersen's model gives a broad overview, his model did not change its focus on the individuals as a focal point for access to medical care (Andersen, 2008). In an expatriate and minorities context, their job characteristics have more impact than their individual or personal characteristics in access to medical care.

The study findings showed the factors that influence access to medical care for the insured worker. Health insurance and PMPHC have a major impact on access to medical care. Health insurance increases access to medical care for the expatriate population, but particularly for those with employer-paid healthcare expenses as illustrated in the proposed model in Figure 7.9. The employer's influence on access to medical care through health insurance cannot be underestimated. A great deal of literature stresses this fact and reports that government regulations, insurance companies and healthcare providers cannot facilitate access to medical care without the support of employers. This is even more important for vulnerable groups such as the expatriate population in GCC countries. Therefore, the Andersen model may not assist reflection on the actual factors influencing access to medical care for employees, nor more specifically, for minority populations such as expatriate workers. In addition, some personal attributes do not significantly affect access; a change in some job-related variables directly affects expatriate access to health insurance as well as class of health insurance services he can avail, which in turn can directly impact an individual's access to medical care. In other words, most expatriates in GCC countries are working in a job they are over qualified for (Hodaythi et al., 2006); most are employed in jobs that do not reflect their actual education (low skills required for the job compared to high

personal education level). Therefore, the model in Figure 7.9 enables us to segregate personal characteristics (such as worker's educational level) and workplace characteristics such as job education requirement.

Furthermore, the Andersen model used utilisation as a proxy for access to medical care (Andersen, 1995). This measure is insufficient, as this thesis illustrated, because utilisation measures are only part of the picture. The inability to access medical care (Access 2) and ability to access a usual medical care setting (Access 1) must also be considered. Therefore, all three access measures have been included in the proposed model to assess the main factors associated with health insurance and access to medical care (see Figure 7.9).

Access to medical care cannot be assessed by utilisation measures as proposed by Andersen for two reasons:

First: utilisation measures might explain the utilisation for access to usual medical care only but not necessarily access to tertiary or specialist services mainly for expatriates' population. There is evidence that expatriates may not face a challenge in accessing usual medical care (Szczepura, 2005, Smaje and Le Grand, 1997, Stronks et al., 2001, Nielsen et al., 2012) but may encounter challenges in accessing tertiary medical care for different reasons (Alam et al., 2012, Sokal, 2010, Worth et al., 2009, Elkan et al., 2007).

Two: The poor quality of medical care might reduce in terms of availability of medical equipment, patient referral system, and quality of medical staff as one study (Al-Ahmadi and Roland, 2005) indicates that seeing a physician may not be enough to measure access to medical care. Therefore, utilisation measures may not be enough for developing countries, where quality of medical services is one of the barriers of accessing medical care services. Based on these two reasons, access to medical care has to be measured in three different dimensions in order to have a more detailed access measures. In addition, should there be a challenge within either of these access measures, then the decision maker will be able to determine in which one.

In addition, there are factors that influence access to medical care related to workplace characteristics, such as the size of the company, economic sector, availability of sick leave, and job classification (see Appendixes 4.1 and 4.3). The "job's education requirements" factor has been very influential on access to medical care for two reasons. Firstly, job classification reflects the criticality of the job for the employers. This is affected by the government's movement to control the expatriate population by controlling the issue of visas.

Secondly, job classification reflects the income of the expatriates because the more critical the job, the higher the salary.

On the other hand, the worker's age, marital status, and health status are the main factors that influence access to medical care (see Appendix 3.2). Marriage can reflect the job classification of the worker. According to Saudi Arabian law, only professional expatriate workers can bring their families to reside in the Kingdom. Marriage also reflects the income of the expatriate. Therefore, the influence of job education requirement on access to medical care has association not only with the employee's income but also with other factors such as marital status.

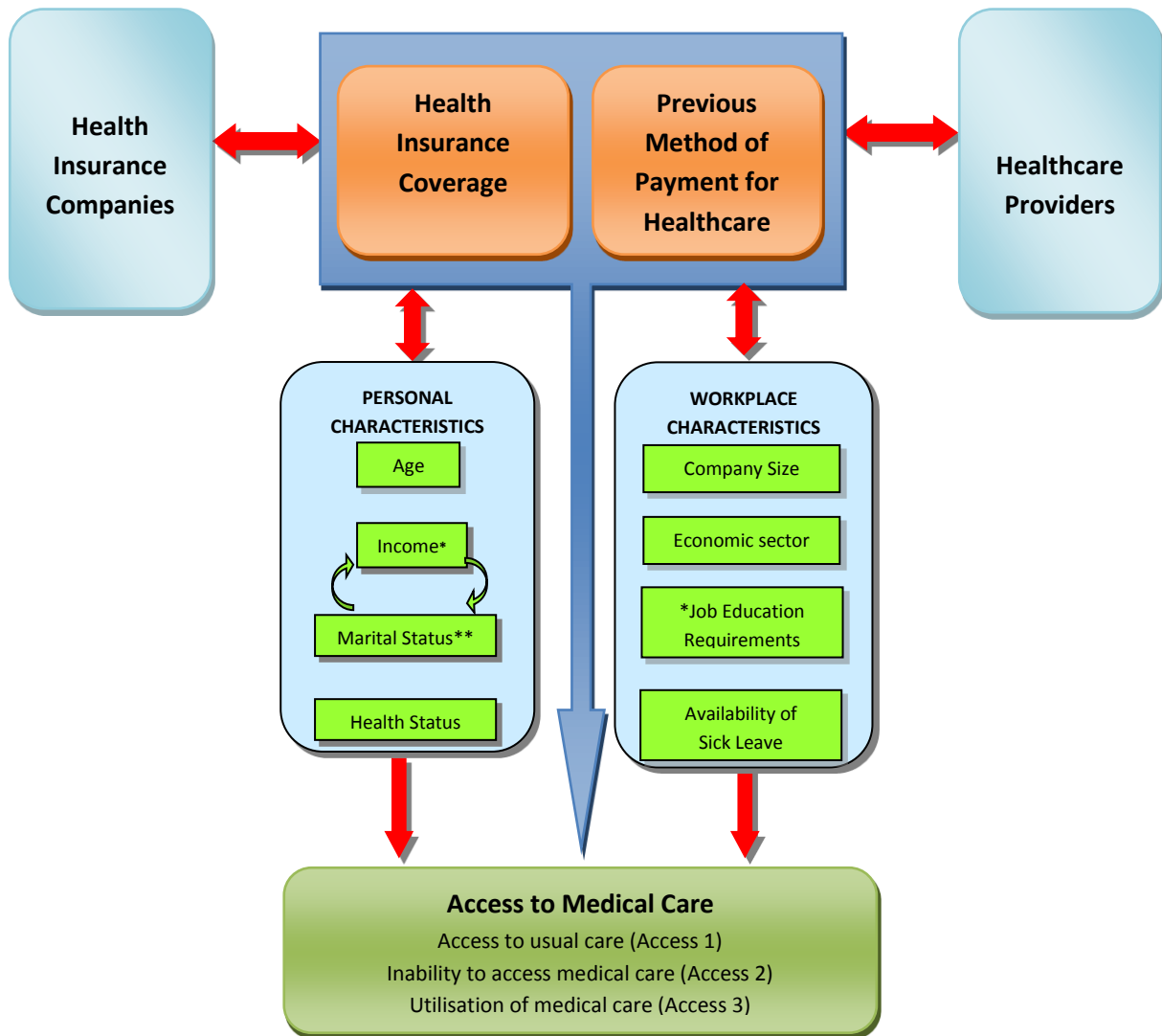
Furthermore, recent trends and changes in global public health and national health policies have revealed that the contextual characteristics are important components in the study of access and utilisation of medical care. These contextual characteristics include health organization and provider-related factors and community characteristics (Andersen, 2008). The two main contextual factors that have vital influence on access to medical care are insurance companies and healthcare providers. These two factors have been included in the model in figure 7.9. The insurance industry in Saudi Arabia is still in its infancy. The limited companies in the market, and their failure to cope with increasing demand, are the chief complaints from subscribers. The reports from the Cooperative Health Insurance Council in 2008 and 2009 showed that the highest percentage of complaints received were about insurance companies (CCHI, 2009a, CCHI, 2008). Although the law on Supervision of Cooperative Insurance Companies allows a minimum capital of SR100 Million for insurance companies and SR200 Million for companies that will undertake insurance and reinsurance activities, most companies have a capital below 100 million (SAMA, 2008).

Furthermore, the poor quality of services by healthcare providers and shortage of healthcare personnel and facilities, also affects access to medical care. After CEBHI, the government expenditure on health as a percentage of total health expenditure did not change (around 77.6%), considering that more than one-third of the population used the private sector to access medical care. In the other words, the private expenditure did not change in a way that reflects the increased number of people who only have access to medical care in the private sector. The limited number of healthcare providers as well as limited options within healthcare plans, fails to encourage competition. According to an MOH report, the "increase of private health services has not coped with the huge increase in demand on the private sector since 2006" (MOH 2008); the number of beds per 10,000 people in Saudi Arabia and GCC countries is less than that of upper-middle-income countries. In addition, there is a big

challenge to provide healthcare services in rural areas, because the private hospitals are concentrated within the two major cities of Saudi Arabia. These access barriers could be called community access barriers. The community element refers to enabling resources that allows a person to access available healthcare such as the presence or absence of local healthcare providers and facilities, waiting and travel times (Andersen, 1995).

Figure 7.9 is an elaboration of the original study framework, which illustrates the main factors associated with the relationship of health insurance on access to medical care. This proposed model focuses mainly on the impact factors of access to medical care for minority populations such as the expatriates within Saudi Arabia.

Figure 7.9: The Proposed Framework/Model of the Main Factors Associated with Health Insurance and Access to Medical Care



* - the more critical the job, the higher the salary

**as per Saudi government policy, only professionals are allowed to bring their families to reside within KSA

8 Chapter 8: Conclusion and Policy Implications

8.1 Conclusion

8.1.1 What are the Similarities and Differences in Healthcare Financing between Saudi Arabia and other GCC countries?

GCC countries have common characteristics such as high-income governments, dominant expatriate populations, and under-development of healthcare systems, including healthcare financing. Subsequently, these characteristics influence their healthcare financing strategies in different ways. Firstly, their governments run the majority share of the health budget as many high-income countries do. Secondly, although having clear objectives for financing their health targets (employers bear the responsibility of medical care expenses), GCC countries do not have a clear approach as to how to meet these objectives, so use different strategies to control expatriate costs. However, some of these strategies lead to increased OOP expenses, which is a characteristic of low-income countries. Thirdly, healthcare financing systems in GCC countries are under development, since they finance their healthcare services from natural resources (i.e. oil or gas), which are commodities with a fluctuating price. Additionally, some of their healthcare indicators such as the number of nursing and medical staff are below upper-middle income countries.

These characteristics affect how GCC countries should finance healthcare and set their health insurance schemes. The dominance of the expatriate working population raised the question of how to devise a health insurance scheme that guarantees equitable access to health care for all residents whilst financing health care differently. Although the GCC countries are examining different options for financing health care services, they have not yet identified or implemented any approaches to achieve this objective and are at the stage of searching and learning from one another's experiences. Saudi Arabia was one of the few GCC countries to reform her private healthcare system and reduce dependence on government resources. If the CEBHI is a good model and proves to be an effective scheme that assists expatriates to increase their access to medical care, this model could be adapted by other GCC countries.

The GCC countries share the need to reform their health care systems including health financing. For example, the distribution of health care expenditure may well be inequitable. In the context of the Saudi Arabian health care system, spending on health care is likely to be inequitable due to fragmentation of the health care budget amongst different government agencies. The benefits offered by the non-MOH agencies are more extensive than those covered by the MOH; therefore, the benefit incidence of the system could potentially be

improved either by combining these governmental systems or allocating the budget based on a per capita need formula (Schieber, 2005).

In addition, the current financing structure in GCC countries leads to misalignment between budget and the demand for services. A new relationship between the purchasing organisation and provider must be established, in which there is enhanced monitoring and control of healthcare expenditure. Evidence supports that governments should promote active purchasing (Kutzin, 2001). Conceptually, it is possible for GCC countries to implement a purchaser/provider split, but as Kutzin (2001) says, this might be very challenging in practice. Therefore, in order to facilitate this, the GCC countries, as is the case in Qatar, must develop a system of national health accounts.

Furthermore, under the law in most GCC countries, including Saudi Arabia, the government is obliged to provide free health care services to its citizens, whilst the employers are obliged to provide health care services to the expatriate employees. Therefore, the big challenge for GCC countries is how to devise a health insurance scheme that guarantees equitable access to health care for all residents whilst financing health care differently. Although Saudi Arabia is one of the few GCC countries to reform its private health care system and reduce dependence on government resources, government expenditure on health still dominates total health expenditure, and private expenditure is lower than expected. For example, after the CEBHI, the government expenditure on health as a percentage of total health expenditure did not change (around 77.6%), considering that more than one-third of the population used the private sector to access medical care. However, private expenditure did not change in a way that reflects the increased number of people who only have access to medical care in the private sector; there was a shift in the means of private sector expenditure from OOP payments to private insurance expenditure. OOP expenditure decreased from 32.3% in 2006 to 28.4% in 2008, and private insurance expenditure increased as a percentage of private sector expenditure from 26.2% in 2006 to 36.7% in 2008. This indicates that the main impact of CEBHI on private expenditure is the change in the mode payment from OOP to private insurance expenditure. However, the actual impact on the private sector expenditure is still minor.

8.1.2 What is the influence of Health Insurance in the form of CEBHI, on Access to Medical Care?

In summary, access to medical care is influenced by health insurance. In addition, it is also influenced by PMPHC as a contributory role to play in the influence of health insurance on

access to medical care. Workplace and personal characteristics play a small part in mediating the influence of health insurance on access to medical care.

Three access measures were used to assess the study objectives; access to usual medical care setting (Access 1), unmet medical needs, also referred to as inability to access to medical care (Access 2), and utilisation of medical care (Access 3). In addition, this objective was addressed by analysing data regarding access to medical care for four expatriate groups:

- A. Those employees whose employers never paid their health expenses and are uninsured post CEBHI implementation
- B. Those employees whose employers never paid their health expenses, but are insured after CEBHI
- C. Those employees whose employers paid their health expenses but are uninsured after CEBHI
- D. Those employees whose employers paid their health expenses and have insured them during the implementation of CEBHI

A conceptual framework was developed based on Andersen's model to investigate the impact of insurance on access to medical care; the conceptual framework was also used as a guide for multivariate techniques and assisted in interpretation of the results.

CEBHI was designed in a way to mitigate some of the negative effects of the ESI scheme implemented in the United States. For example, unlike ESI in the United States where the scheme is voluntarily, the CEBHI scheme is not only compulsory, but also imposes a financial fine on employers who fail to follow the policy. CEBHI has a unified health policy with pre-determined minimum health benefits, and is controlled by a government agency. Supposedly, this means that an employer cannot provide fewer benefits than prescribed.

Based on the above-mentioned classification, two insured groups (B and D) having different PMPHC were studied. The impact of insurance on these two groups was measured via three access measures, and provides the answer to a critical question for health policy makers, which is, whether private health insurance increases access to medical care. Whilst the inclusion of Group D enabled assessment of the impact of insurance on access to medical care for an expatriate population whose medical expenses had previously been paid but were not necessarily insured before CEBHI. In addition, measuring the impact of insurance for Group B allows us to investigate to what degree the enforcement of health insurance

increased access to medical care for groups of expatriates, where the employer had not previously paid employee medical care expenses.

There are many factors that contribute to the disparity in access to medical care between workers in Groups B and D. The main reasons can be classified into two: firstly, Group B employers did not pay healthcare expenses before CEBHI. Therefore, the employers had to find ways to mitigate or substitute the extra cost obligations. Secondly, the different characteristics of the employers in Groups B and D and the impact of the extra cost of insurance for Group B versus Group D. Workers in Group B have characteristics that make the insurance benefits coverage less generous than for Group D. The main indicators that influence the generosity of the benefits package are the employer's size, economic sector, and the worker's occupation. Workers in Group D have better positions or advantages over workers in Group B.

In addition, disparity in the benefit packages between Groups B and D, also explains the challenge Group B report for Access 2. Access 2 reflects access to the main benefits under CEBHI. Therefore, Group B's poorer access to Access2 reflects the discord between the insurance coverage of this group and the official benefits cover according to CEBHI.

Health insurance has a substantial impact on access to usual medical care. The availability of usual medical care is a major indicator of access to medical care for most developed countries, which has led some scholars to believe it is more influential than health insurance. The availability of usual medical care must be understood according to the quality of service and type of service provided. In the Saudi Arabian context, both the quality and type of services provided in primary health care is very poor; this reduces our expectation of this access measure alone, as being an insufficient measure of access to healthcare.

The impact of health insurance on the utilisation of medical care is significant when contrasted with those not insured and not paid. However, the impact of insurance on this access measure for those insured is insignificant when compared with the access of those who are paid but not insured, yet insured utilisation is more. Similarly, the insignificant utilisation of medical care of Groups B and C and the weak impact of insurance on Access 2, led the investigator to conclude that Group B's utilisation of medical care is likely related to the utilisation of primary healthcare rather than tertiary or specialized services. This view is supported by the significant influence of insurance on access to usual medical care, whilst the impact of insurance on utilisation is insignificant when compared to Group C.

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Enforcement of the CEBHI law that mandates employers in the private sector to provide compulsory health insurance benefits to its employees has increased access to usual medical care for expatriate workers. The workplace characteristics and personal characteristics also influence expatriate access to medical care.

Overleaf is a summary of the impact of insurance and PMPHC on the three access-to-medical-care measures.

Access 1

Although there are two groups of insured expatriates, their employers act differently in regard to the payment of medical care expenses (Groups B and D). The study finds the impact of health insurance on these two groups is rather different, with a much bigger influence of health insurance on Group D when compared with Group B. This influence increases when adjusted by other variables such as workplace and personal characteristics.

Access 2

Insurance reduces the inability of access to medical care, demonstrated by Group D workers reporting better access than Group C (even though both groups received medical care expenses from their employers). However, the influence of PMPHC is greater than the influence of insurance alone on reducing the inability to access medical care. This is exemplified by Group C workers reporting less inability to access medical care than the insured Group B. Workplace and personal characteristics also influence the impact of insurance and PMPHC, yet this affect is different for each group.

Access 3

Health insurance increases Access 3 for both insured groups when compared to the uninsured and unpaid Group (Group A). However, although insured alone, Group B is higher in their utilisation of medical care than paid and uninsured Group C, the difference in utilisation between these two Groups cannot be considered statistically significant. Group D reported the best access amongst the four groups.

8.1.3 What Framework is Useful for Understanding the Complex Relationship of Health Insurance and Access to Medical Care?

The elaborated framework illustrated in Figure 7.9 is useful for further investigation on the influence of health insurance of access to medical care. Health insurance and PMPHC are very influential on access to medical care. In addition, an employer's size, economic sector, job skill requirements, and the availability of sick leave are the main influential workplace characteristics. Age, income, marital status and health status are the main factors that influence access to medical care from personal characteristics.

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8.2 Policy Implications: to Make Policy Relevant Recommendations on the Key Question of whether to Expand Compulsory Health Insurance in Saudi Arabia

8.3 Recommendations

8.3.1 Short-Term Recommendations

It is recommended that policy makers find ways to encourage employers to provide access to medical care for all expatriate workers according to the benefits coverage. It is not enough to enforce employers to adhere to compliance of the law, because employers have many ways of avoiding compliance within the provisions of the law. A national dialogue could be conducted with employers through both the Ministries of Commerce and Labour, to ensure their knowledge of the vital role in CEBHI and to seek advice or reservations about participating in the CEBHI scheme.

In addition, one of the limitations of the impact of insurance on access to medical care is poor awareness of the expatriates about the services covered by the CEBHI system. Information about the CEBHI is available from the CCHE website, in only the English and Arabic language, whilst more than 70% of expatriates' native languages are neither English nor Arabic. Most expatriates get information about the coverage from their friends or community networks. Furthermore, expatriates may be unaware of the insurance details due to the visa-process being handled by recruitment agencies, as one study reported (Joshi et al., 2011).

Therefore, the policy makers, with active participation of all relevant stakeholders, must initiate activities to increase expatriate knowledge about CEBHI coverage by utilizing resources that offer wide coverage. For example, the main internet website of the Council of Cooperative Health Insurance is only available in Arabic or English. Therefore, information about health insurance must also be made available in the main expatriate languages.

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In addition, the policy and services coverage by CEBHI should be part of the contract between the expatriates and their employers. All recruitment agencies should translate the CEBHI benefits and coverage policy in the language of the expatriate recruit before departing for Saudi Arabia. In addition, a consent form to confirm knowledge about the CEBHI, should be signed by the expatriate as a part of the contract with the employer.

Policy makers must develop policies to mitigate other barriers of access to medical care, chiefly from healthcare providers and insurers, by encouraging high standards of investment. Immaturity of insurers likely reduces access to medical care for the expatriate population in different ways. Although the Law on Supervision of Cooperative Insurance Companies stated a minimum capital of SR100 Million for insurance companies and SR200 Million for companies that will undertake insurance and reinsurance activities, only 9 out of 19 fully licensed health insurance companies have a capital above SR100 Million (SAMA, 2008). Some of the developing countries increase the capital investment to insure the quality of service provided by insurers (Harrington, 2007). Therefore, the government must enforce the capital investment requirements to insure the quality of services provided to customers. In addition, the government must manage the trade-off between protecting customers against loss in case insurance companies fail and creating incentives for private insurers to be safe.

From the perspective of healthcare providers, the density of health personnel (i.e. Physicians, Dentists, Nurses) and number of beds per 10,000 people, is not only less than that of upper-middle income countries but also less than most GCC countries. In addition, more than half of the private beds and almost half of the private hospitals are located within two cities (Riyadh and Jeddah). The inequity between the number of healthcare providers and the large population, suggests the access problem is also a supply problem. Furthermore, the government hospitals are concentrated to provide medical services in rural areas. This defeats one of the objectives of CEBHI to relieve government spending on healthcare. The low private expenditure is related to the need for more legislation, an unclear vision of the private sector and manpower challenges (Hediger et al., 2007). These reasons apply to all GCC countries. In the Saudi Arabian context, the law for private healthcare services states that at least one of the owners of a health centre must be a Physician, thereby discouraging businessmen from investing in healthcare (Cabinet of Ministers, 2002). As a result, the number of healthcare providers has not expanded as expected (Alkhamis, 2008b, Alkhamis, 2008a) and therefore, policy makers need to revise the legislation of private healthcare investment to ensure attractiveness of investments in the healthcare industry.

In addition, there is a supply problem because of the provision of poor quality of care from some healthcare providers. Encouragement or an increase in healthcare provider investment may not be beneficial, if there is no enforcement of healthcare standards that all providers must follow. Although a Central Board for Accreditation of Healthcare Institutions was founded to promote the quality of healthcare in healthcare facilities, provide accreditation and classification of healthcare facilities based on their size and services (Central Board for Accreditation of Healthcare Institution, 2005), this board is not active. A study on low-income developing countries showed that although a lack of financial resources is an obstacle that prevents many people from accessing healthcare; poor quality of the services provided is the main reason that people do not join a healthcare plan (Criel and Waelkens). Therefore, the policymaker must activate the board and work to enable the removal of all barriers that prevent the board from performing its functions.

Health insurance premiums have increased rapidly due to the increasing demand for health insurance, and the demand will be greater when CEBHI includes the families of expatriates. Over the past three years, the cost of health insurance policies has increased by 200% (AlGhashari, 2008). In addition, premiums will continue to rise, as there is no current mechanism to ensure that insurers cover high-risk expatriates. Furthermore, the growth rate of small companies having less than five employees is highest at 26% (GOSI, 2008); these companies represent 51.6% of the total expatriate workforce (GOSI, 2008). These facts have a negative impact, not only on access to medical care for expatriates due to high premiums, but also on the sustainability of CEBHI in the future. It is therefore recommended that small companies are united as one pool, in order to increase their appeal to insurers and reduce premiums, and furthermore, that a solidarity fund be established to absorb high-risk workers, and a policy developed allowing the small companies to be united as one pool, as a means of increasing their appeal to insurers and reduce premiums.

Based on the comments from research participants and reservations about accepting private health insurance by some Islamic scholars, it is recommended that the CEBHI scheme is revisited and on-going monitoring established, to determine the extent of employer compliance in the private sector. This is in concurrence with the provision of the CEBHI law for a one-year assessment period and monitoring of the law's effectiveness prior to its full implementation that will cover all expatriate employee dependents.

8.3.2 Long-Term Recommendations

In order to assist policy makers in their deliberations about making CEBHI compulsory for all people (citizens and expatriates) as a long-term strategy, the following facts must be considered:

Firstly, this study has revealed that enforcement of the law is not the only means to ensure health insurance access for minority groups such as expatriate workers. Employer-paid medical care expenses before CEBHI was significantly influential amongst the insured population. In addition, the impact of insurance on access to medical care is moderate.

Secondly, the current CEBHI has many challenges similar to any private health insurance, although the government's regulation aims to mitigate the disadvantages of ESI in the United States (Section 2.12.3). For example, the cost of health insurance policies has risen over the past three years (AlGhashari, 2008), and the cost will escalate due to lack of cost-control mechanisms. More than two-thirds of working expatriates are low-income, and according to one study, private health insurance has never been used to finance healthcare services for low-income workers even in the United States (Docteur and Oxley, 2003). Creating competition between healthcare providers and health insurance companies has been shown to not increase access to healthcare or reduce the cost of healthcare (Relman, 2007). If the impact of insurance provides challenges for some access measures (mainly those whose employers were forced to provide health insurance to staff), access to medical care will be more challenged when all expatriate families are included within the CEBHI scheme.

Thirdly, there is evidence that privatization neither improves access to medical care (Alkhamis, 2012). Some researchers advocate that privatization would be the best way to reform the Saudi healthcare system (Almalki et al., 2011), however, there has been no mention in the Ministry of Health's strategic plan to move towards privatization of its hospitals and services (MOH, 2010c), nor was such a move mentioned in the agency's National Project for Integrated and Comprehensive Health (MOH, 2010b). In addition, there is evidence that privatization neither improves healthcare outcomes nor reduces healthcare expenditure of developing or developed countries. India, a developing country, relies heavily upon private healthcare and spent 4.8% of its gross domestic product (GDP) on healthcare in 2003. In comparison, Sri Lanka spent 3.5% of its GDP on healthcare and relies upon its government to finance healthcare, yet their infant mortality rate is five times lower and life expectancy is nine years longer than in India (Hsiao, 2007). In addition, some studies have identified challenges that face expansion of the role of private health insurance in China, with some negative impact on access to medical care (Blumenthal and Hsiao, 2005). On the other hand, the United States, a developed country, spends the highest amount on

healthcare per person annually and in 2005, the highest percentage of gross domestic product (GDP) (USD6,697 and 16% respectively), yet 47 million Americans are uninsured and lack access to healthcare (Relman, 2007). In addition, the United States has the highest infant mortality rate and lowest life expectancy of all high-income countries that members of Organization for Economic Cooperation and Development (OECD) countries (Catlin et al., 2007) (see Appendix 4 for more details). Moreover, it has been anticipated that the Saudi health system will suffer from similar challenges to those of the United States' system, such as rising healthcare expenses, which have subsequently reduced access to medical care (Khaliq, 2012).

However, as stated earlier, private health insurance could play a role in improving access to medical care, but for supplementary or complementary coverage to predominantly publicly funded systems as practiced in most high-income countries (Sekhri and Savedoff, 2005). Private healthcare services could target only high-income workers as implemented in Germany, or act as a supplement to public-coverage as implemented in Canada, or as a supplement to health insurance as per France and Australia (Mossialos et al., 2004, Thomson and Mossialos, 2009, Schoen et al., 2010). Private health insurance could also be a part of the multiple fund system to pay for supplementary services as recommended by one study on a developing country in her movement towards Social Health Insurance (SHI) (Schwefel, 2008).

Finally, many studies report that private health insurance has been used as a step towards achieving universal coverage through SHI (WHO, 2004b, Carrin and James, 2005, Bärnighausen and Sauerborn, 2002). There is also strong evidence that SHI helps increase access to healthcare (Ekman et al., 2008, Bärnighausen and Sauerborn, 2002, Michielsen et al., 2011). However, priority must be given to improving the efficiency, equitability, sustainability of the financing system, affectability of the risk pool, and efficiency of the purchasing (Schieber, 2005). For example, the absence of separation between financing and provision in the current financing structure in Saudi Arabia as well as other GCC countries, has led to misalignment between the budget and the demand for services. A new relationship between the purchasing organization and providers must be established, wherein the demand for health services is separated from the supply.

Based on the above evidence and within the context of the long-term plan for the government, it is further recommended that the government consider shifting from private health insurance to an SHI scheme, where contribution is based on income and not on healthcare risk factors. Shifting from private health insurance to SHI could be beneficial for the Saudi government in the following ways:

- 1) The contribution will form part of the visa and residency renewal fees, and an expansion of occupational health services could be provided with additional fees. This will ensure that all expatriate workers have health insurance, thus reducing the influence of corruption and the immaturity of insurers or 'under the table' payments. In addition, this action will mitigate the difference in the risk pool between large and small employers. The contribution would be proportional to income and not just a fixed co-payment, which could be a barrier for low-income people. In the United States many support the move from defined benefit approaches towards defined contribution design (Sperling and Shapira, 2011).
- 2) Increasing the cost of visa and residency renewal permits would reduce the number of expatriate workers, thus, encouraging the employment of Saudi citizens into the private sector. Similarly, the Costa Rican government raised the rate of contribution to the fund, which led to an increase in the cost of labour (Normand and Weber, 2009). The increase in labour costs for the acquisition of expatriate workers could be used as an advantage for Saudi workers in the private sector. National Saudi labour in the private sector was only 9% in 2009, whilst the unemployment rate was 10.5% in the same year. The Saudi Arabian government clearly stated in the first strategic goal of its 8th Development Plan, they planned to increase the ratio of Saudi manpower in the employment sector by "providing more employment opportunities to Saudi nationals in the private sector in order to face the demands resulting from natural growth, as well as to gradually take-over from existing expatriate workers" (Ministry of Economy and Planning, 2005). If private sector employers are required to cover the premium for Saudi workers and their dependents (the average Saudi family has six members (Central Department Of Statistics & Information, 2007b), and therefore the CEBHI policy is bound to have a negative impact on an employer's decision to recruit Saudis into the private sector. Government policies, incentives, and regulatory initiatives have collectively contributed to expand the role of the private sector and boosted its efficiency over the past three decades. The current CEBHI also provides for Saudi citizens working in the private sector and their dependents (CCHI, 2009c). The inclusion of Saudis under CEBHI coverage is a duplication of effort, given the government's obligation to provide health services for its citizens as per Saudi governance law (Government, 1992). It is imperative that the government is held responsible for the cost of healthcare for all Saudis, particularly due to the legal requirement, and the increasing costs for employers; employers will become increasingly disinclined to employ Saudis due to the cost. In summary,

shifting from private health insurance to social health insurance will be in alignment with the government's movement towards increasing the number of Saudi citizens in the private sector.

Whilst a large amount of literature presents the advantages and disadvantages of a SHI scheme, a larger public debate should be encouraged to carefully study its applicability in the Kingdom of Saudi Arabia, considering all internal and external factors; these include the health insurance market status, the capacity to cater to a huge target market, the number of healthcare providers *vis-à-vis* private sector employees, the country's large expatriate worker population, and the government's strategy for providing competitive and gainful employment to Saudi citizens. Some middle-income countries would be hard-pressed to generate the required funds to finance SHI, and informal workers dominate their workforce; some developed countries would also struggle to finance sickness funds due to increasing rates of retirees in the workforce versus the number of workers (Stock et al., 2006). In Saudi Arabia's case, the population will not suffer from an aging population in the short term, since 32.6% of the population are estimated to be under the age of 15 years (Central Department of Statistics & Information, 2007a). In addition, the growth rate for Saudis was estimated between 1992 and 2004 at 2.5% and 2.4 % for non-Saudis (Central Department of Statistics & Information, 2007a). Furthermore, more than half of the expatriates are less than 40 years old (Central Department of Statistics & Information, 2008), and are required to leave the Kingdom at the age of retirement when sponsorship ends, significantly reducing the over sixty population pool.

8.4 Recommended Future Research

It is not clear whether the employee co-payment is catastrophic for some expatriates considering the average expatriate's salary in the private sector was less than USD270 per month (Central Department of Statistics & Information, 2008), and it is not clear if this salary includes the housing allowance. An expatriate must pay between 10% and 25% of his salary for specialist care, in order to cover the co-payment, excluding the cost of transportation and other expenses. The maximum amount he must pay is arranged between USD26.67 for specialist to USD 66.67 for a rare medical specialist. According to the WHO, the co-payment is considered to be catastrophic if it is more than 40% of a household's income (Carrin and James, 2004). Therefore, further investigation is required to assess whether or not the co-payment is a barrier to accessing medical care.

A further study is required to determine why some employers bear the responsibility of paying medical care expense whilst others do not. Although it has been determined some of

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the characteristics of both employers and employees from an expatriate point of view, it is recommended that an investigation of the financial impact of CEBHI from employers point of view.

Moreover, a personal characteristic reported in many studies as being influential on access to medical care, was found to be insignificant within this study. However, some studies have identified that access to medical care is not the same for different ethnic groups. A further qualitative study might require assessing if there is disparity in access to medical care for specific ethnic workers since they may have different healthcare seeking behaviours.

Finally, this study has not investigated why some employers provide health insurance for their employees and others do not. This preferential treatment and behaviour of employers requires further investigation. Although not discussed in this thesis, it will be important to investigate who has access to health insurance and who does not. Data is available from this study and will be the focus of one of the publications arising from this study.

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10 Appendices

Appendix 1

1. Appendix 1.1 Survey Questionnaire
2. Appendix 1.2 Email Communication with ARQ
3. Appendix 1.3 Consent of Appreciation Form
4. Appendix 1.4 Number of Interviewees per Interviewer

Appendix 2

1. Univariate analysis with respective p-values, descriptions of the access measures and their association with the personal and workplace characteristics of expatriates

Appendix 3

1. Variables under the workplace and personal characteristics that influence access to medical care.
 - a. Appendix 3.1.1 Access 1
 - b. Appendix 3.1.2 Access 2
 - c. Appendix 3.1.3 Access 3
2. The variables under the personal characteristics that Influence access to medical care after adjustments for health insurance, PMPHC, and workplace characteristics
 - a. Appendix 3.2.1 Access 1
 - b. Appendix 3.2.2 Access 2
 - c. Appendix 3.2.3 Access 3
3. The variables under the workplace characteristics that influence access to medical care after adjustment for health insurance, PMPHC, and personal characteristics
 - a. Appendix 3.3.1 Access 1
 - b. Appendix 3.3.2 Access 2
 - c. Appendix 3.3.3 Access 3

Appendix 4 Confirmation of Publication to Eastern Mediterranean Health Journal

10.1 Appendix 1

Appendix 1.1 - Survey Questionnaire

Company Code:

Respondent Number:

A. DEMOGRAPHIC DATA:

Date of birth:

(If your actual date of birth different from the date of birth in Igama please stated)

Nationality:

Highest educational attainment:
(1=Illiterate 2=Read and write 3=Elementary 4=High School 5=Diploma 6=Bachelor 7=Masteral 8=Doctoral)

Marital status:
(1=Single 2=Married, family in KSA 3=Married, family outside KSA 4=Divorced 5=Widow/widower)

What is your native language?
(1=Arabic 2=Urdu 3=Hindi 4=Malayalam 5= Bengali 6=Tagalog 7=English 8=Other:)

Are you comfortable conversing in English? (0=No 1=Yes)

Are you comfortable conversing in Arabic? (0=No 1=Yes)

B. EMPLOYMENT SECTION:

1. What is your position in your company?

2. How long have you been working in Saudi Arabia? years months

3. About how many employees are there in your company/organization?

4. What kind of business/industry does your company do?

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5. Can you take paid sick leave if you have to visit a doctor? (0=No 1=Yes 2=Don't know)

6. What is your usual monthly income including all allowances **except** housing allowance?

(If your family shares income with you, please add this to your income.)

1. Less than 600 S.R
2. Between 600-1000 S.R
3. Between 1001-2000 S.R
4. Between 2001-3500 S.R.
5. Between 3501-4500 S.R
6. Between 4501-6000 S.R
7. Between 6001-7500 S.R.
8. Between 7501-9000 S.R
9. More than 9001 S.R.

7. Does your employer provide you with free accommodation? (0=No 1=Yes) if Yes Go to Section C

7.1 How much does your employer pay for your housing accommodation annually?

SR

7.2 How much do you actually pay for your accommodation annually?

SR

C. ACCESS TO MEDICAL CARE:

1. Is there a particular doctor's office, clinic, health centre or other place that you usually go if you are sick or need advice about your health? (0=No 1=Yes 2=More than one place)

If No above, go to 2

1.1 Please give the name of the medical provider/hospital: _____

1.2 Location/address of medical provider/hospital: _____

1.3 Does your medical provider speak your preferred language or provide translator services to you?

(0=No 1=Yes)

2. What is the **main reason** you do not have a usual source of health care? (Choose one)

1=Seldom get sick

2=Recently moved into Area/do not know where to go to care

4=Cannot find a provider who speaks my language

5=I treat myself/do not use doctor

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3=like to go to different places for different health needs

6=Other: _____

3. In the last 12 months, were you **unable to get medical care**, tests, or treatments you or a doctor believed were necessary? (0=No 1=Yes)

If No above, go to 4

3.1 What was the **main reason** you were **unable to get medical care**, tests, or treatments? (Choose one)

1=No money

6=Poor quality of service

2=Provider (i.e. hospital)refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not approve , cover, or pay for care

8=Different language

5=Problem related to the transportation

9=No time off from work (could not get permission)

(took too long to go to provider , or inability to pay for transportation)

10=Other: _____

3.2 How much of a problem was it that you did **not get medical care**, tests, or treatments you or doctor believed were necessary?

1=No problem

2=A small problem

3=A big problem

4. In the last 12 months, were you **delayed in getting medical care, tests, or treatments** you or doctor believed were necessary? (0=No 1=Yes)

If No above, go to 5

4.1 What was the main reason you were **delayed in getting medical care**, tests, or treatments? (Choose one)

1=No money

6=Poor quality of service

2=Provider (i.e. hospital)refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not approve , cover, or pay for care

8=Different language

5=Problem related to the transportation

9=No time off from work (could not get permission)

(took too long to go to provider , or inability to pay for transportation)

10=Other: _____

4.2 How much of a problem was it that you were **delayed in getting medical care**, tests, or treatments you or doctor believed were necessary?

1=No problem

2=A small problem

3=A big problem

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5. In the last 12 months, were you **unable to get dental care, tests, or treatments** you or doctor believed were necessary? (0=No 1=Yes)

If No above, go to 6

5.1 What was the **main reason** you were unable to **get dental care, tests, or treatments**? (Choose one)

1=No money

6=Poor quality of service

2=Provider (i.e. hospital)refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not

8=Different language

approve , cover, or pay for care

9=No time off from work (could not get permission)

5=Problem related to the transportation

10=Other: _____

(took too long to go to provider

, or inability to pay for transportation)

5.2 How much of a problem was it that you were **unable to get dental care, tests, or treatments** you or doctor believed were necessary ?

1=No problem

2=A small problem

3=A big problem

6. In the last 12 months, were you **delayed getting dental care, tests, or treatments** you or doctor believed were necessary? (0=No 1=Yes)

If No above, go to 7

6.1 What was the **main reason** you were delayed in getting dental care, tests, or treatments?

(Choose one)

1=No money

6=Poor quality of service

2=Provider (i.e. hospital)refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not

8=Different language

approve , cover, or pay for care

9=No time off from work (could not get permission)

5=Problem related to the transportation

10=Other: _____

(took too long to go to provider

, or inability to pay for transportation)

6.2 How much of a problem was it that you were **delayed in getting dental care, tests, or treatments** you or doctor believed were necessary?

1=No problem

2=A small problem

3=A big problem

7. In the last 12 months, were you **unable to get prescription medicines** you or doctor believed were necessary? (0=No 1=Yes)

If No above, go to 8

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7.1 What was the **main reason** you were unable to get prescription medicines? (Choose one)

☐

1=No money

6=Poor quality of service

2=Provider (i.e. hospital) refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not

8=Different language

approve, cover, or pay for care

9=No time off from work (could not get permission)

5=Problem related to the transportation

10=Other: _____

(took too long to go to provider

, or inability to pay for transportation)

7.2 How much of a problem was it that you were unable to get prescription medicines?

☐

1=No problem

2=A small problem

3=A big problem

8. In the last 12 months, were you **delayed getting prescription medicines** that you or your doctor believed were necessary? (0=No 1=Yes)

☐

If No above, go to 9

8.1 What was the **main reason** you were **delayed getting prescription medicines**? (Choose one)

☐

1=No money

6=Poor quality of service

2=Provider (i.e. hospital) refused to accept insurance plan

(long waiting time, inappropriate appointment, other unsatisfactory procedure of obtaining services)

3=Co-payment was high

7=Poor attitude of health care provider

4=Insurance company would not

8=Different language

approve, cover, or pay for care

9=No time off from work (could not get permission)

5=Problem related to the transportation

10=Other: _____

(took too long to go to provider

, or inability to pay for transportation)

8.2 How much of a problem was it that you were **delayed getting prescription medicines** you or your doctor believed were necessary?

☐

1=No problem

2=A small problem

3=A big problem

9. How long has it been since you went to a doctor or clinic to get care for an illness or injury?

☐

1=Never

4=More than or equal to one year but less than 2 years

2=Less than or equal to 6 months

5=More than or equal to 2 years

3=Between 6 months and one year

D. General Organization of Social Insurance (GOSI)

1. In the last 12 months, have you had an accident or injury while at work? (0=No 1=Yes)

☐

If No above, go to Section E

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3.1 Who covered your medical expenses for that accident or injury while at work? ☐

1=Myself

4=GOSI

2=Employer

5=Other: _____

3=Health insurance

E. INPATIENT UTILISATION:

1. In the last 12 months, were you an inpatient in a hospital for overnight stay or longer? (0=No 1=Yes) ☐

If No above, go to Section F

1.1 How many nights did you stay in the hospital?

1.2 Name of medical provider/hospital: _____

1.3 Location/address: _____

1.4 Who paid for your most recent hospitalization? ☐

(1=Myself 2=employer 3=Insurance company 4=Other: _____)

1.4.1 Amount you paid (*Leave blank if you did not pay anything*) _____

SR

1.4.2 Amount paid by insurance company
(*Leave blank if insurance company did not pay*) _____

SR

F. DENTAL SERVICES UTILISATION:

1. About how long has it been since you went to a dentist to get care? ☐

1=Never

4=More than or equal to one year but less than 2 years

2=Less than or equal to 6 months

5=More than or equal to 2 years

3=Between 6 months and one year

If Never above, go to Section G

1.1 Who paid for your dental fees? ☐

(1=I paid full amount 2=I paid co-payment 3=Insurance paid in full 4=Other: _____)

1.1.1 Total amount you paid (*write NA if not applicable*) _____

S
R

1.1.2 Co-payment amount paid (*write NA if not applicable*) _____

S
R

G. HEALTH STATUS

1. What would you say is your overall health status? ☐
(1=Excellent 2=Very good 3=Good 4=Fair 5=Poor)

2. Have you been diagnosed as having a chronic disease? (0=No 1=Yes 2=Don't know) ☐

3. How many days during the past 30 days was your physical health not good?
(Physical health includes physical illness and injury)

4. Are you limited in any way in any activities because of physical, mental, or emotional problems?
(0=No 1=Yes) ☐

5. During the past 2 weeks, how often have you been bothered by feeling down, depressed or hopeless?
(0=Not at all 1=Some days 2=Several days 3=More than half the days 4=Nearly everyday) ☐

6. Overall, how would you rate your emotional health?
(1=Excellent 2=Very good 3=Good 4=Fair 5=Poor) ☐

7. Do you smoke cigarettes or moasel or hubble-bubby? ☐
(0=No 1=Yes, everyday 2=Yes, regularly 3=Yes, but quit)

- 7.1 If you quit smoking, how long ago? years months

HAVE YOU HAD HEALTH INSURANCE FOR AT LEAST 12 MONTHS CONTINUOUSLY?

0=No, go to Section II
1=Yes, go to Section III

☐

SECTION II: (RESPONDENTS WITHOUT HEALTH INSURANCE OR have been insured for less than one year)

1. What is the reason you do not have health insurance or have not been continuously insured? (Choose one) ☐

1=I have been insured for only _____ months GO TO section III

2=I am sponsored by different employer

3=My visa was for a different job

4=I have not renewed my Iqama

5=My health insurance policy was valid for less than 1 year

6=Health insurance was meant to renew the Iqama only

7=Other: _____

2. Who usually pays for your health care expenses? ☐

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(1=Myself 2=Employer 3=Shared between me and my employer 4=Other: _____)

3. Has your employer reimbursed you, at least partially, for the out-of-pocket amount you paid for your health care expenses? (0=No 1=Yes)

☐

3.1 If Yes, how much do you expect to be reimbursed?
(1=Full amount 2=Partial amount 3=Not fixed)

☐

3.1.1 If partial, what percent of the total amount?

GO TO SECTION IV

SECTION III: (RESPONDENTS WITH HEALTH INSURANCE)

A. HEALTH INSURANCE STATUS BEFORE CEBHI

1. Before CEBHI, were you enrolled in any other health insurance program?

☐

1=No, my employer did not register

3=Yes, through my employer (**Go to B**)

2=Yes, I registered myself

4=I was not in Saudi Arabia then (**Go to B**)

2. Before CEBHI when you did not have health insurance, who usually paid for your health care?

☐

1=Myself

3=health insurance company through my employer

2=My employer

4=Other: _____

3. In case you do not have health insurance before CEBHI, did your employer reimburse you, at least partially, for the out-of-pocket amount you paid for your health care expenses?
(0=No 1=Yes)

☐

3.1 If Yes above, how much was reimbursed to you?

☐

(1=Full amount 2=Partial amount 3=Not fixed)

3.1.1 If partial amount was reimbursed, what percent of the total amount?

_____ %

B. HEALTH INSURANCE STATUS AFTER CEBHI

1. Do you know when you enrolled with CEBHI? (0=No 1=Yes)

☐

1.1 If Yes, what date?

Year Months

--	--	--	--	--	--

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2. Do you know how much you have to pay when you visit an outpatient doctor? (0=No 1=Yes)

☐

(Include doctor's fee, all examinations such as x-rays and labs,
prescribing drugs and any future follow-up visits)

2.1 If Yes, how much?

SR

3. Do you know how much you have to pay when you visit a dentist? (0=No 1=Yes)

☐

(Include doctor's fee, all examinations such as x-rays and labs, prescribing drugs
and any future follow-up visits)

3.1 If Yes, how much?

SR

4. Do you know how much you have to pay for inpatient services if you are admitted to a hospital?

☐

(0=No 1=Yes)

4.1 If Yes, how much?

SR

5. Do you know how much you have to pay for prescription drugs? (0=No 1=Yes)

☐

5.1 If Yes, how much?

SR

6. What is your health insurance company's name? _____

7. What is your health insurance policy number? _____

8. Who pays for your health insurance coverage premium?

☐

(1=Myself 2=My employer 3=share between me and employer 4=Other: _____)

C. HEALTH CARE SERVICES UTILISATION:

1. Compared to before CEBHI, have the number of your visits to a doctor increased?

☐

1=Increased

4=Don't know/cannot compare

2=Decreased

5=Other: _____

3=About the same

2. Compared to before CEBHI, have you increased the number of times you buy medicine without

☐

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a doctor's prescription?

1=Increased

2=Decreased

3>About the same

4=Don't know/cannot compare

5=Other: _____

3. Since the establishment of CEBHI, have the number of visits to your dentist increased?

1=Increased

2=Decreased

3>About the same

4=Don't know/cannot compare

5=Other: _____

☐

4. Before CEBHI, were there times when you did not see a doctor when you were sick?

(0=No 1=Yes 2=Don't know/cannot compare)

☐

4.1 Did this situation change after CEBHI? (0=No 1=Yes)

☐

5. Compared to before CEBHI, how do you feel about your ability to get medical care if needed?

1=More secure

2=Much less secure

3>About the same

4=Don't know/cannot compare

5=Other: _____

☐

6. How would you compare your overall health status to last year?

(1=Better 2=Same 3=Worse 4=Don't know/cannot compare)

☐

7. Overall, are you satisfied with the CEBHI?

1=Satisfied

2=Unsatisfied

3=Neutral

4=Don't know/cannot compare

5=Other: _____

☐

IV. Please write your comments and suggestions/feelings towards:

1. Compulsory Employment-Based Health Insurance (CEBHI)

Appendix 1.2 Author's Email Communication with ARQ

Please see my answers below in **red**. I appreciate your interest in MEPS.

{Please see the publications tab on the MEPS website to see publications using the access to care variables. I am pretty sure there is not any publication which has used all of the variables listed in this section. The following page lists the publications done by MEPS staff using one or more access to care variables.
http://www.meps.ahrq.gov/mepsweb/data_stats/MEPS_topics.jsp?topicid=1Z-1 }

Second, how do you analysis all of these questions together? For example, if someone says that the consequence of not getting access to medical care is not a problem, does that mean he or she has no problems with access to health care whereas when someone says it is a big problem that means he has a problem in accessing to health care?

{That's an analytic question and it's up to the researcher to dig deeper into it.}

Your respond to these questions is highly appreciated

Looking forward for your feedback,

Best Regards

Abdulwahab Alkhamis,M.S. &MPA/HA

Appendix 1.3 Consent of Appreciation Form

This informed consent form is for health services provided to expatriates in the private sector in Riyadh city and who are invited to participate in research “Implications of Introduction of Compulsory Employment Based Health Insurance on Access, and Utilisation of Medical Care in Riyadh city, Saudi Arabia”.

Principle investigator: Abdulwahab Alkhamis

Organization: Liverpool School of Tropical Medicine, Liverpool University

This informed Consent Form has two parts:

- I. information Sheet (to share information about the study with you)
- II. Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the full Informed Consent Form

I. Information Sheet

Hi my name is Abdulwahab Alkhamis. I am doing research on the impact of the introduction of compulsory employment based health insurance on access, utilisation of medical services on male expatriate employees in the private sector. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and we will take time to explain. If you have questions later, you can ask them of me or of other research team members.

Access to medical care for expatriates before the implementation of compulsory employment based health insurance was not easy. We want to learn if expatriates are aware of the advantage of the new health insurance system and how much they have to pay to be treated? In addition we want to learn if the new Compulsory Employment Based Health Insurance system improves your access to medical care and your health status? You are being invited to take part of this research because we feel that your working experience as an expatriate in the private sector can contribute much to our understanding and knowledge of the access to health care after the implementation for compulsory employment based health insurance.

Your participation in this research is entirely voluntary. The choice that you make will have no bearing on your job or on any work-related evaluations or reports. You may change your mind later and stop participating even if you agreed earlier.

We are asking you to help us learn more about the impact of compulsory employment health insurance systems on your access, utilisation of health care services, and your health status. We are inviting you to take a part in this research project. If you accept, you will be asked to

fill out a survey which will be provided by (research team members' names) and collected by (research team members' names). The questionnaire is available in different languages. Please fill out the survey version that is most convenient for you. You may answer the questionnaire yourself, or it can be read to you and you can say out loud the answer you want the research team members to write down.

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. The distribution of the survey questionnaire will be by the research team members who have been selected to assist you to fill the form if needed and assist you in case you need any assistance. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except the primary investigators and his supervisor in Liverpool University.

The research will take place over three months in total. Each interview will last for about forty five minutes.

If you think there is a risk that you may share some information that your employer does not want you to share with any one or you feel uncomfortable talking about some of the topics, please understand that you do not have to answer any question or take part in the discussion survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

There will be no direct benefits to you, but your participation is likely to help us find out more about how to help to improve access to medical care for expatriates.

You will not be provided any incentive to take part in the research. However, we will give you travel expenses when we fail to provide transportation services to you.

We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name or your employers' name. Only the primary investigator will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except his supervisors.

Nothing that you tell us today will be shared with anyone outside the research team, and nothing will be attributed to you by name or by employers' name. The research finding will not have any impact on any individual or company who has participated in the research. Any company that has not complied with the law will not be identified. The knowledge that we get from this research will be shared with you before it is made widely available to the public. Each participant will receive a summary of the results. In addition, there will also be small meetings and they will be announced in the media. Following meetings, we will publish the results so that other interested people may learn from the research.

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your job or job-related evaluations in any way. You may stop participating in the discussion at any time that you wish without your job being affected. You will be given an opportunity at the end of the discussion to review your remarks, and you can ask to modify or remove portions of those if you do not agree with my notes or if I did not understand you correctly.

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me via any of the following:

Abdulwahab Alkhamis

This proposal has been reviewed and approved by the ethics committee at King Abdullah International Research Centre, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about the committees, you may contact them at the following address:

King Abdullah International Research Centre

In addition, it has been reviewed by the Research Ethics Committee at Liverpool School of Tropical Medicine, University of Liverpool, which is supporting the study.

II. Approval of participant's consent form

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study. In addition, I give permission for the primary investigation to read my medical records, and to publish or report the finding of this study knowing that my identity will not be revealed.

Thumb print of participant

Printed Name of Participant_____

Signature of Participant_____

Date_____

Day/Month/Year



If illiterate (the witness will be selected by the participant)

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely

Print name of witness|_____

Signature of witness_____

Date_____

Day/Month/Year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participants. I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and consent has been given freely and voluntarily.

A copy of this Informed Consent Form has been provided to the participant.

Print Name of primary investigator/ research team member_____

Signature of primary investigator/ research team member_____

Date_____

Day/Month/Year

Appendix 1.4: Number of Interviewees per Interviewer

NUMBER OF INTERVIEWERS	LANGUAGES SPOKEN	NUMBER OF INTERVIEWEES
2	English, Arabic, Bengali	450
		300
2	Bengali, Urdu and Hindi, Arabic	700 each
2	Malayalam, Urdu, Hindi, Arabic	150
		100
1	Urdu, English, Tagalog, Arabic	750
1	Bengali, Nepali, Malayalam, Hindi, Arabic	305
Total: 8		3,455

10.2 Appendix 2: Univariate analyses

Personnel Characteristics, Workplace Characteristics and Three Access Measures
Univariate analyses (with respective p-values)

Group A: Personal Characteristics

	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Age (Official)			.0001			.299			.000
<30	19.6%	13.6%		15.5%	18.6%		18.0%	11.4%	
30-	45.0%	40.2%		42.0%	41.5%		42.2%	41.2%	
40-	28.1%	33.7%		31.8%	31.1%		29.6%	35.9%	
50-	6.6%	10.8%		9.4%	8.5%		9.3%	9.2%	
60+	.8%	1.6%		1.4%	.3%		.8%	2.3%	
Age (Real)			.000			.187			.000
<30	19.8%	13.8%		15.7%	19.2%		18.3%	11.5%	
30-	44.7%	40.2%		42.0%	39.9%		42.2%	41.2%	
40-	28.2%	33.5%		31.5%	32.6%		29.4%	36.0%	
50-	6.5%	10.9%		9.4%	7.9%		9.3%	9.2%	
60+	.8%	1.6%		1.4%	.3%		.8%	2.2%	
Nationality			.191			.853			.002
Arab	28.6%	30.8%		30.1%	29.6%		28.3%	33.5%	
Non-Arab	71.4%	69.2%		69.9%	70.4%		71.7%	66.5%	
Nationality			.000			.000			.000
Indian	21.8%	25.2%		24.6%	18.0%		23.6%	24.7%	
Bangladeshi	33.0%	25.2%		26.9%	38.4%		30.0%	24.1%	
Pakistani	10.6%	10.7%		10.8%	9.1%		10.6%	10.9%	
Egypt	15.2%	16.7%		16.3%	14.9%		14.5%	19.3%	
Philippines	2.1%	5.5%		4.5%	2.4%		4.1%	4.6%	
Yemen	5.8%	4.3%		4.8%	4.9%		5.4%	3.7%	
Other Arab	7.5%	9.8%		8.9%	9.5%		8.3%	10.4%	
Asian	3.0%	2.2%		2.6%	1.5%		2.8%	1.8%	
Western	.1%	.0%		.0%	.3%		.0%	.0%	

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	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Other Nationalities	.8%	.4%		.5%	.9%		.6%	.4%	
Can Speak Arabic			.014			.574			.281
Yes	7.7%	10.3%		9.5%	8.5%		9.0%	10.2%	
No	92.3%	89.7%		90.5%	91.5%		91.0%	89.8%	
Can Speak English			.000			.000			.000
Yes	61.1%	40.1%		46.2%	60.4%		50.8%	41.2%	
No	38.9%	59.9%		53.8%	39.6%		49.2%	58.8%	
Education			.000			.154			.000
Illiterate	1.6%	1.6%		1.6%	2.1%		1.8%	1.2%	
Read/Write	6.1%	4.5%		5.0%	5.5%		5.7%	3.8%	
Primary	27.3%	22.0%		23.4%	29.0%		24.9%	22.2%	
Intermediate / Secondary	38.1%	34.7%		36.0%	35.4%		37.4%	33.0%	
Diploma	6.6%	8.0%		7.5%	7.3%		6.4%	9.6%	
Bachelor	19.0%	26.0%		23.9%	19.5%		21.9%	26.6%	
Master & Doctorate	1.2%	3.2%		2.6%	1.2%		2.0%	3.6%	
Income			.000			.091			.000
<=2000	74.6%	62.0%		65.8%	73.2%		69.5%	60.5%	
2001-4500	23.3%	28.4%		27.0%	22.3%		24.6%	30.4%	
4501-6000	1.5%	4.8%		3.7%	2.4%		3.4%	3.9%	
6001-9000	.3%	3.1%		2.2%	1.5%		1.6%	3.4%	
>9000	.3%	1.7%		1.3%	.6%		1.0%	1.7%	
Marital Status			.000			.394			.000
Single / Divorced	16.6%	11.1%		12.8%	16.2%		14.8%	9.8%	

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	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Married with Accompanying Family	13.1%	21.7%		18.6%	18.3%		16.8%	22.3%	
Married without Accompanying Family	70.3%	67.1%		68.6%	65.5%		68.4%	67.9%	
Health Status			.000			.000			.000
Excellent/Very Good	82.5%	82.1%		83.2%	74.1%		83.9%	79.0%	
Good	11.5%	14.9%		13.4%	15.9%		11.6%	17.9%	
Below Average/Poor	6.0%	3.0%		3.4%	10.1%		4.5%	3.1%	

Group B: Workplace Characteristics

	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	Able	Not Able	p-value	No	Yes	p-value
Availability of Sick Leave			.000			.042			.001
No	5.9%	8.5%		7.5%	8.4%		7.8%	7.1%	
Yes	82.7%	86.8%		85.8%	81.3%		84.0%	88.2%	
Do not know	11.4%	4.7%		6.7%	10.3%		8.2%	4.7%	
Current job category			.000			.042			.000
Managerial position	1.4%	3.7%		2.9%	2.4%		2.6%	3.6%	
Specialist	15.1%	19.5%		18.6%	12.5%		15.3%	23.4%	
Technical	3.0%	5.1%		4.4%	3.7%		3.5%	6.0%	
Assistant technician	33.1%	27.4%		28.9%	32.9%		29.5%	29.1%	

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	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	Able	Not Able	p-value	No	Yes	p-value
Others	47.4%	48.0%		45.2%	48.5%		49.1%	37.9%	
Job Educational Requirement			.000			.000			.000
Specialist with university education	16.5%	23.5%		21.8%	14.3%		18.1%	27.1%	
Professional with Education Higher than Secondary	4.1%	6.9%		5.9%	5.8%		5.0%	7.5%	
Technical with Secondary Education	24.9%	22.2%		23.6%	18.9%		24.7%	19.9%	
Manual worker with less than Secondary Education	16.4%	16.2%		16.2%	16.8%		15.4%	18.0%	
Unskilled usually with no Education	38.1%	31.2%		32.5%	44.2%		36.8%	27.5%	
Type of industry			.000			.000			.000
Agriculture	2.5%	2.7%		2.5%	4.0%		2.7%	2.5%	
Mining / Quarrying	1.6%	2.1%		1.9%	2.1%		2.2%	1.4%	
Industrial	16.7%	16.4%		16.4%	16.8%		15.3%	18.9%	
Water and Power	3.3%	1.6%		1.8%	5.2%		2.3%	1.9%	
Construction	16.7%	20.2%		19.3%	15.9%		18.7%	19.4%	
Trade	28.8%	33.3%		32.3%	25.6%		33.9%	27.1%	
Transportation	5.0%	3.8%		4.2%	4.3%		4.0%	4.7%	

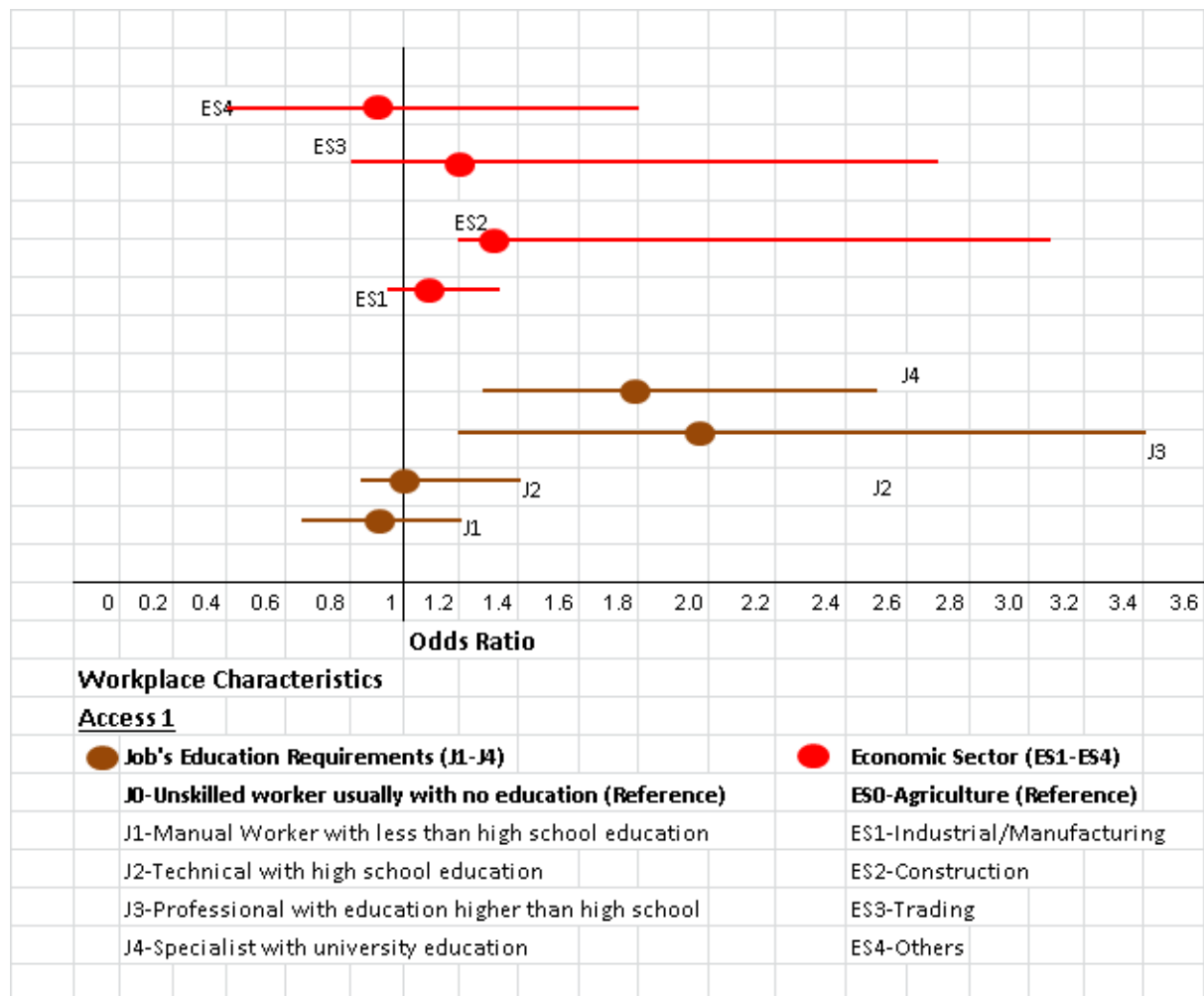
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	Access to Usual Medical Care Setting (Access 1)			Inability of Access to Medical Services (Access 2)			Utilisation of Medical Care (Access 3)		
	No	Yes	p-value	Able	Not Able	p-value	No	Yes	p-value
Financial / Business	3.2%	4.5%		4.3%	2.1%		3.5%	5.3%	
Education / Training	17.4%	13.2%		14.3%	18.9%		13.8%	16.6%	
Other	4.8%	2.3%		3.0%	5.2%		3.7%	2.2%	
Number of employees in the Company			.016			.000			.049
<10	15.8%	14.1%		13.9%	21.6%		13.8%	16.6%	
10-24	12.1%	11.9%		11.7%	15.5%		12.2%	11.7%	
25-50	13.6%	10.6%		11.4%	14.0%		12.4%	10.0%	
50+	58.5%	63.4%		63.1%	48.8%		61.6%	61.7%	

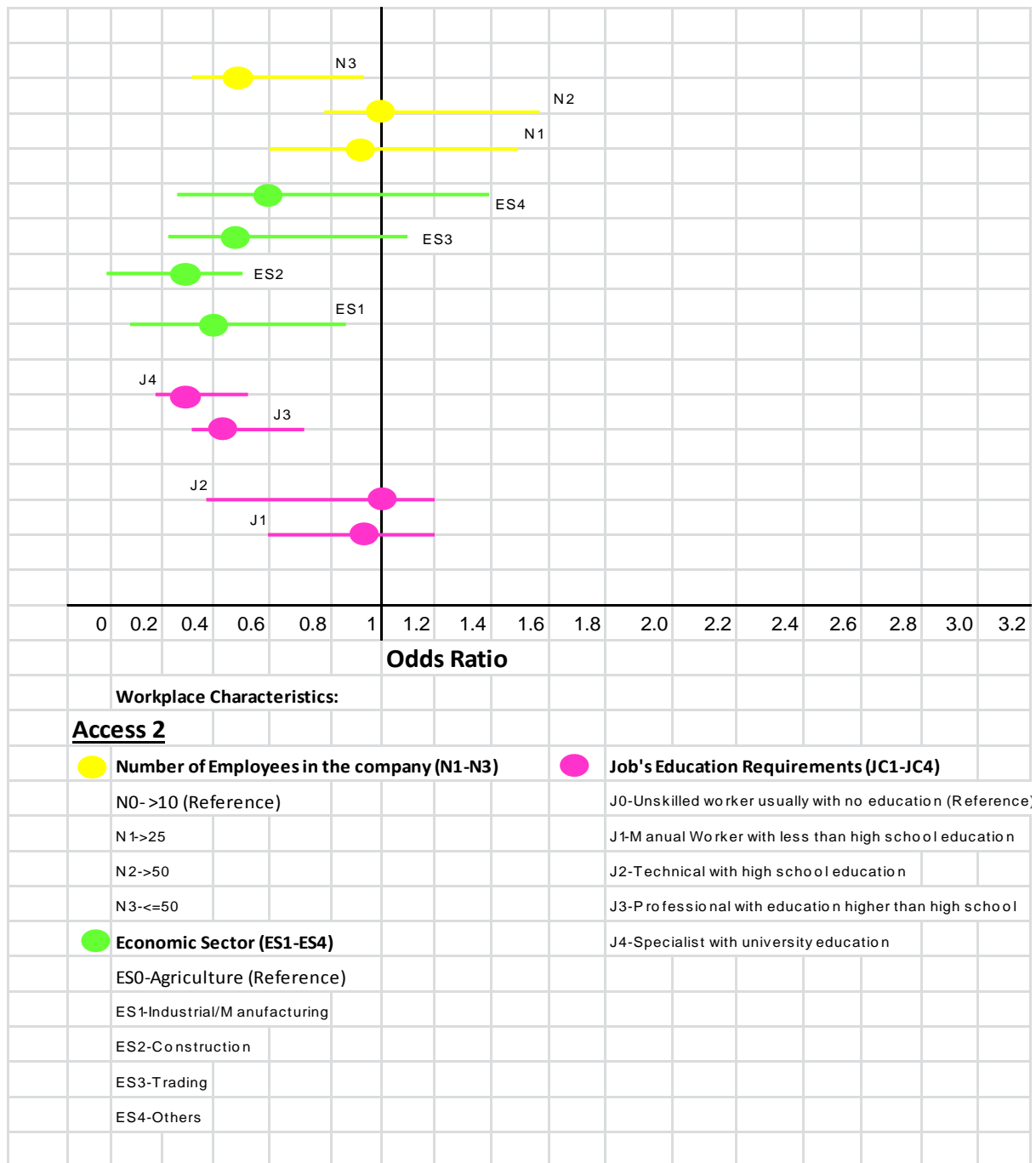
10.3 Appendix 3

3.1 Variables under Workplace Characteristics that Influence Access to Medical Care after Adjustment for Health Insurance and PMPHC.

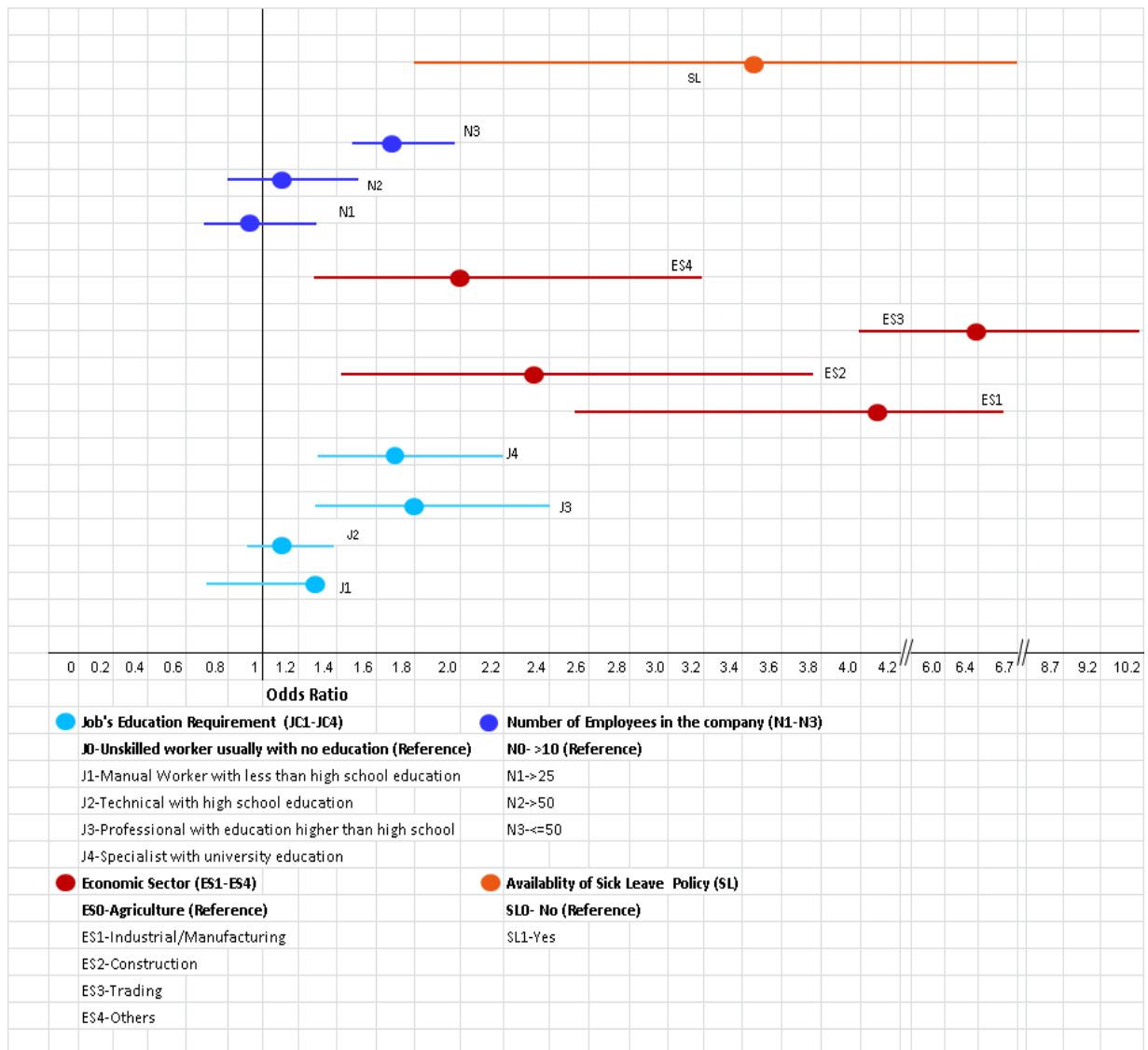
3.1.1 Access 1



3.1.2 Access 2

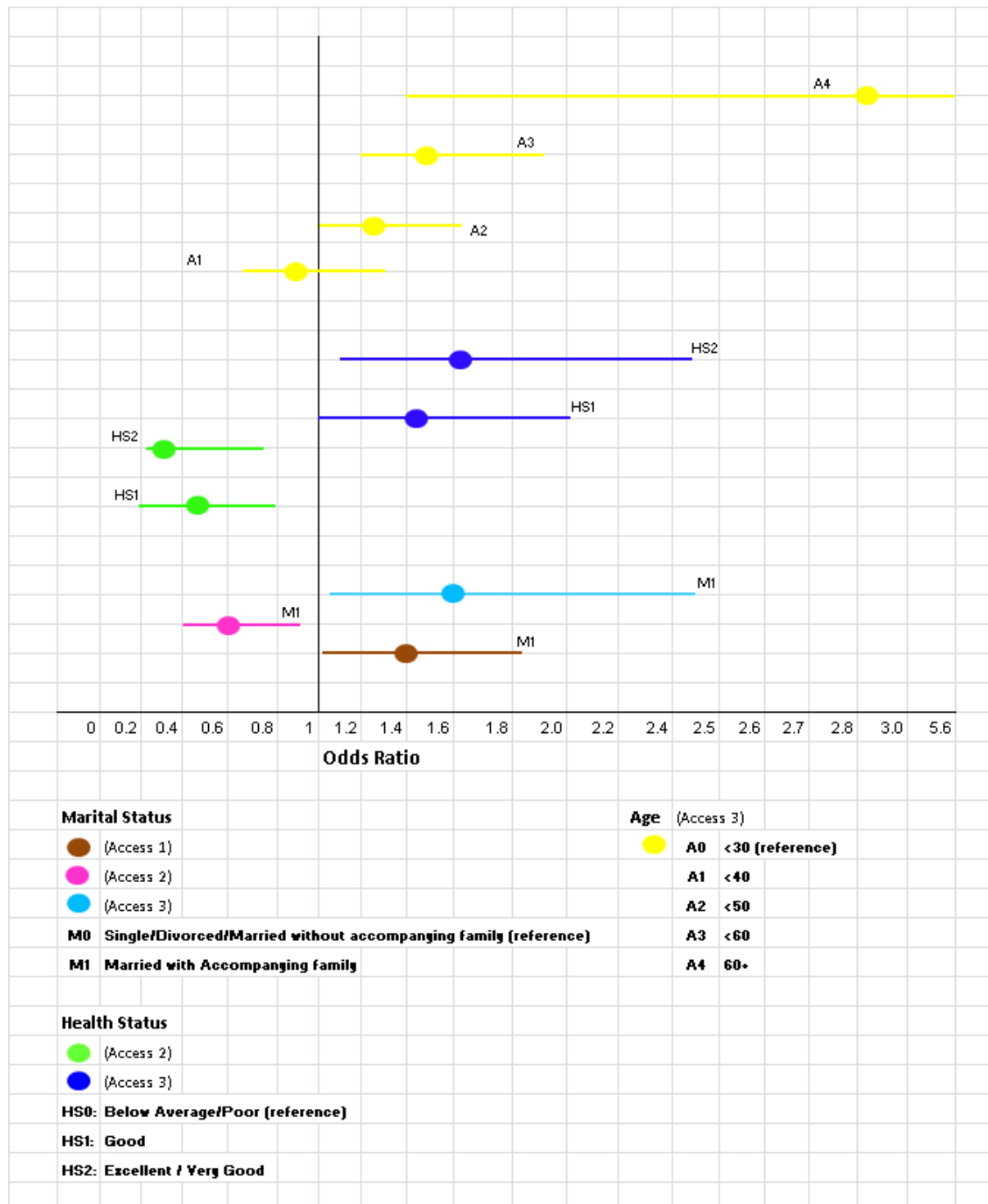


3.1.3 Access 3



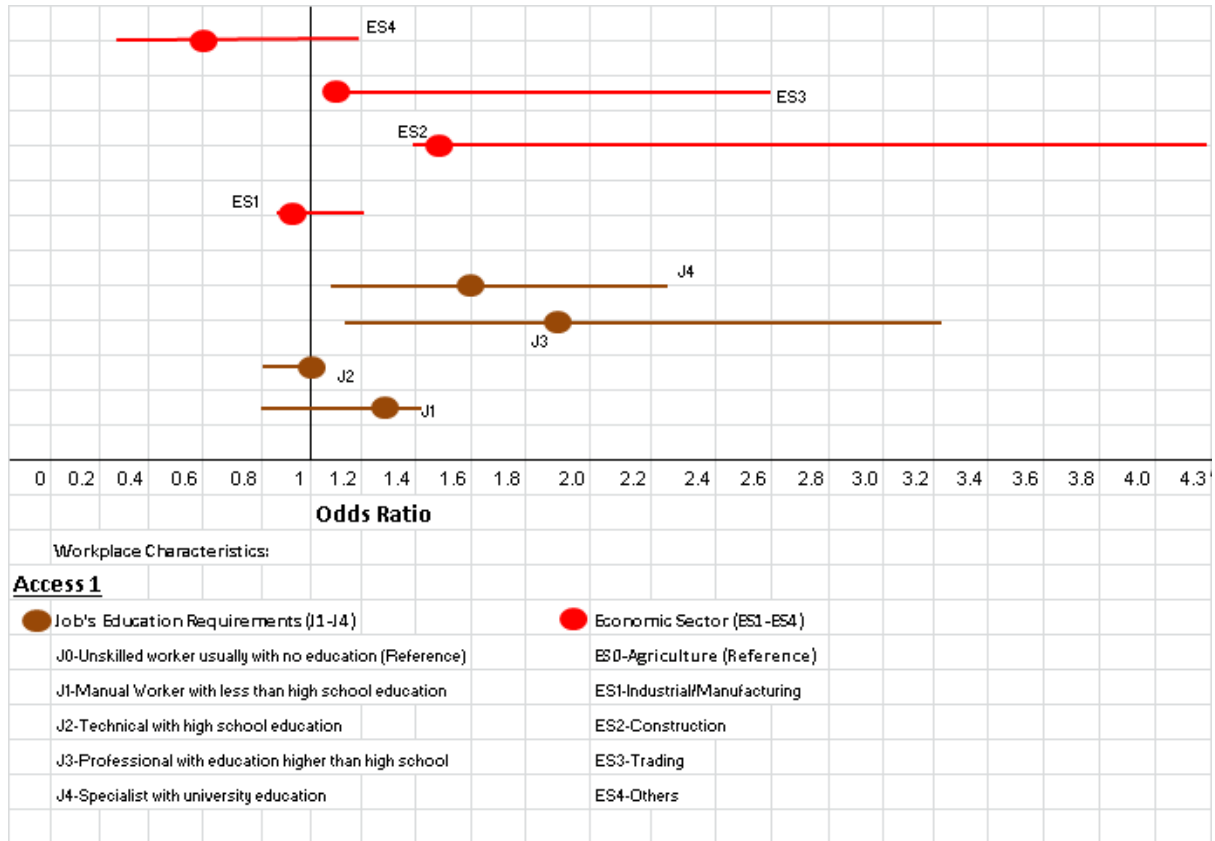
Chapter 10: Appendix

3.2 Variables under Personal Characteristics that Influence Access to Medical Care after Adjustment for Health Insurance and PMPHC, and Workplace Characteristics (Access 1, Access 2 and Access 3 combined in one graph)

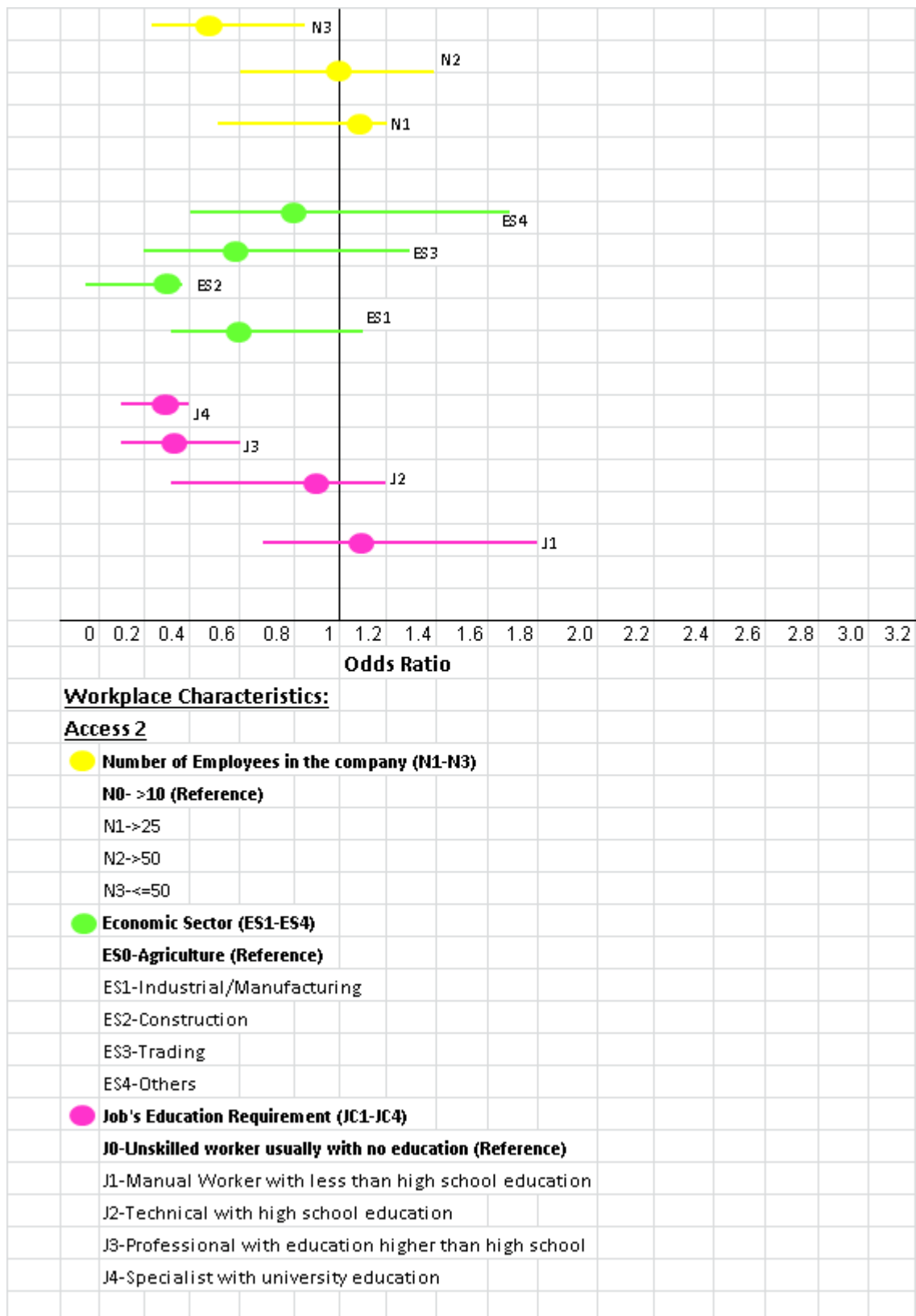


3.3 Variables under Workplace Characteristics that Influence Access to Medical Care after Adjustment for Health Insurance and PMPHC, and Personal Characteristics

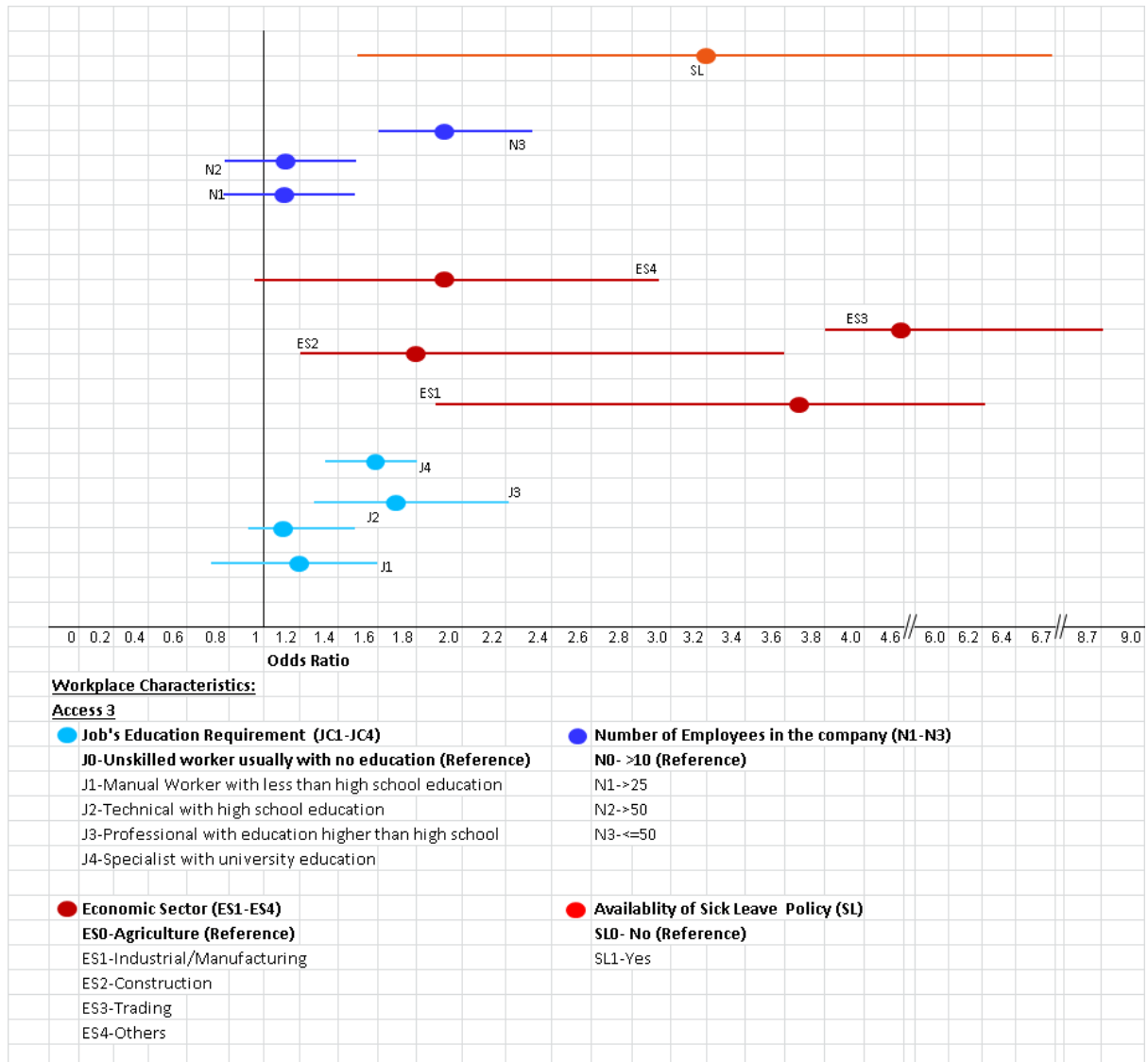
3.3.1 Access 1



3.3.2 Access 2



3.3.3 Access 3



10.4 Appendix 4: Confirmation of Publication to Eastern Mediterranean Health Journal

This text is where the unabridged thesis included the following third party copyrighted material:

Alkhamis, A. (2012) Health care system in Saudi Arabia: An overview. *Eastern Mediterranean Health Journal*, 18, 1078-1079.
<http://www.emro.who.int/ar/emhj-volume-18-2012/issue-10/article-13.html>